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(71) Applicant: FIGURE9, LLC [US/US]; 62 William Street, New York, NY 10005 (US).

(72) Inventors: ROY, Alexander, D.; 250 Mercer Street, Suite C414, New York, NY 10012 (US). LAI, Chu, T.; 286 South Street, Apt. 15D, New York, NY 10002 (US). KUNSTLER, Donald, F.; 861 Broadway, 4th Floor, New York, NY 10003 (US).

(74) Agent: DEROSA, Frank, J.; Brown Raysman Millstein Felder & Steiner LLP, 120 West 45th Street, New York, NY 10036 (US).

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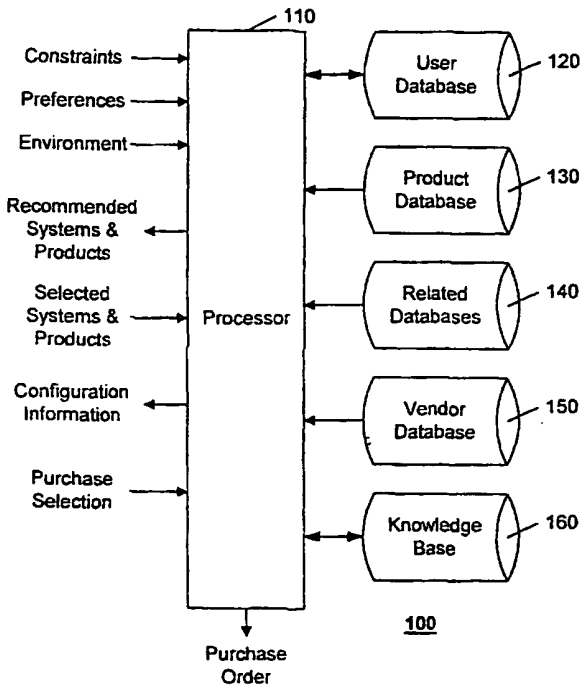
(54) Title: CONSUMER ELECTRONICS SYSTEM CONFIGURATION



(57) Abstract: A configuration system provides configuration information for electronic components and systems, particularly for consumer electronics components and systems. The configuration system may include one or more of the following: a system configurator, a wiring configurator, and a placement configurator. An integrated configuration system includes two or all of the configurators. The integrated configuration system combines content, guidance, and commerce, uniquely tailored to the

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needs of consumers in a particular field of electronics. In a preferred embodiment, consumers enter preferences relating to audiovisual products and receive personalized recommendations for components available for purchase. The wiring configurator generates customized wiring diagrams for selected components, to identify required interconnection devices, and to ease the task of interconnecting the components. The placement configurator, or room configurator, allows the consumer to enter room dimensions, furniture location and other relevant information, and provides guidance for optimal audiovisual product selection and placement. A database of audiovisual componant information provides component specifications, product reviews, reliability and repair ratings, compatibility and interaction issues, and other information that assists the consumer in the component selection process, and also includes detailed technical information to assist the consumer in the installation process, including providing wiring diagrams for each combination of products. The database is provided in searchable form that can be used in connection with templates or other search techniques to enable a user to specify one or more preferences and be provided information about audiovisual products that are available that satisfy the identified preferences.

CONSUMER ELECTRONICS SYSTEM CONFIGURATION

This application claims the benefit of U.S. Provisional Application No. 60/154,372, filed 17 September 1999, the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

This invention relates to the field of electronics systems configuration, particularly for consumer electronics systems, including computers. More specifically, the invention relates to systems and methods that interactively assist consumers in the selection, purchase use, etc. of consumer electronics products, and the retrieval of information relating to such products. ("Consumer electronics is used herein in a broad sense and includes, among other electronics equipment, computer equipment typically purchased by a consumer.) Although the invention has particular application to the consumer electronics field, the invention has application to other equipment in other fields, as will be apparent from this patent document now and as technology develops.

As technology advances in the field of consumer electronics equipment at a rapid rate, consumers find purchasing such equipment increasingly difficult. Many advanced consumer electronic products provide individualized features where performance is best under certain conditions and for specialized uses. Therefore, it is important to purchase consumer electronics equipment that fits the specific needs of the consumer. Due to the variety of possible selections for a particular consumer electronics product, thorough research and a calculated decision are often required when making a purchase. Compounding this decision process, consumers often stagger the purchase of sophisticated consumer electronics equipment, due to the high cost. Thus, each purchase decision must include an assessment of the product's compatibility with that of the consumer's existing system. Currently, consumers often engage in extensive research to find the type of equipment that best suits the consumer's individual needs. The amount and quality of information regarding the equipment is usually sparse, and often favor a particular merchant or brand name. Retailers may be biased toward the products they have in inventory. Magazines are

limited in the number of products they can review in a given year. Internet resources do not combine information coherently, and fail to provide adequate guidance in the selection process, compared to the convenience of buying from a single location.

The potential confusion in the selection and purchase process is problematic to both the consumer and the vendor. Consumers do not necessarily trust the information that a salesperson provides, and salespeople are often frustrated in their attempts to assist the buyer, due at least in part to this distrust. Salespeople cannot be expected to know every detail regarding the interconnection among different devices, particularly among old and new products, and often fail to provide the appropriate cables or adapters for the interconnection, necessitating a return visit by a now-frustrated customer. This frustration can cause a loss of future sales, and may even cause a loss of the current sale, if the customer decides to return the merchandise because of a perceived compatibility problem.

SUMMARY OF THE INVENTION

It is an object of this invention to ease the task of selecting electronic, particularly consumer electronics, components and systems. It is a further object of this invention to improve the likelihood of compatibility of purchased electronic, particularly consumer electronics, components and systems with previously purchased electronic components and systems. It is a further object of this invention to facilitate the purchase of electronic, particularly consumer electronics, components and systems. It is a further object of this invention to facilitate the purchase of items required to effect compatibility among electronic, particularly consumer electronics, components and systems. It is a further object of this invention to alleviate the frustrations commonly associated with the purchase of electronic, particularly consumer electronics, components and systems. It is a further object of this invention to provide a system that increases sales to a consumer electronics component and system vendor.

These and other objects of the invention are achieved by a system and method which provide information useful for selecting, purchasing, assembling, placement and/or connecting components of an electronics system, e.g., a consumer electronics system such as an audiovisual system, and/or for operating such a system or component thereof. At least the selecting and/or

assembling and/or placement information is provided in response to information concerning a user's preferences, requirements and/or constraints, for example, and/or other information.

Selecting, purchasing, assembling, placement, connecting and operating electronic components and systems may be refined to as configuring a system or component for ease of description, and information relating thereto may be referred to as configuration information also for ease of description. Similarly, user or consumer preferences, requirements, constraints and problems which may encompass overlapping items, may be referred to herein as user or consumer information. "Consumer" and "user" are used interchangeably herein, unless the context indicates otherwise. Also, a user may be a sales person entering information on behalf of a consumer and such a user would be encompassed by the term "consumer".

Such a system and method can be implemented with a computerized system that stores information relating to electronics systems and components, and configuration information relating to such systems and components. The computerized system also includes programming which provides the information identified herein in response to user or consumer information and other information of the type identified herein input to the computer system.

The stored information may include configuration information such as component specifications (such as technical specifications, size, weight, placement and use restrictions, etc.), model information, connection information, use information, pricing, availability, shipping, warranty, color, product reviews, trouble shooting information, and other information that may be useful or helpful to a user or consumer. The user or consumer information input into the system may include user or consumer preferences, technical and non-technical requirements and/or constraints, equipment or operating problems, etc.

The information provided by the system for a specific user or consumer can be stored for later access in connection with a further request for information in connection with that consumer. For example, a consumer may want to add to or modify a consumer electronics system about which the inventive system has stored information, or a user may have a connection or operation problem relating to a consumer electronics system about which the inventive system has stored information, etc.

In accordance with the invention, the inventive system can be accessed remotely via a communications network. For example, the inventive system can be accessed using a PC via the Internet.

In an audiovisual implementation, specifically a stereo system, the inventive system stores information of the type described herein for various audio components (e.g., amplifiers, receivers, input devices (e.g., CD, DVD and tape players), speakers, mixers, etc.), and information for combining, connecting and operating the components in various systems. In this implementation, the system also includes programming for selecting compatible components which meet consumer information.

A configuration system is provided which includes one or more of the following: a system configurator, a wiring configurator, and a placement configurator. An integrated system includes two or both of the configurators. The integrated configuration system combines content, guidance, and commerce, uniquely tailored to the needs of users or consumers for the type of equipment involved. In a specific embodiment, the configuration system provides configuration information for audiovisual components. Therefore, description continues with respect to audiovisual components with the understanding that the configuration system may be used in connection with other electronic equipment.

Consumers enter consumer information in the form of preferences relating to audiovisual products and receive configuration information in the form of personalized recommendations for components available for purchase. The wiring configurator generates configuration information in the form of customized wiring diagrams for selected components, to identify required interconnection devices, and to ease the task of interconnecting the components. The placement configurator, or room configurator, allows the consumer to enter room dimensions, consumer information in the form of furniture location and other relevant information, and provides configuration information in the form of guidance for optimal audiovisual product selection and placement. A database of audiovisual component information provides component specifications, product reviews, reliability and repair ratings, compatibility and interaction issues, and other information that assists the consumer in the component selection process, and also includes detailed technical information to assist the consumer in the installation process, including providing wiring diagrams for each combination of products. The database is provided in

searchable form that can be used in connection with templates or other search techniques to enable a user to specify one or more preferences and be provided information about audiovisual products that are available that satisfy the identified preferences.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in further detail, and by way of example, with reference to the accompanying drawings wherein:

FIG. 1 is a block diagram illustrating a configuration system in accordance with this invention.

FIG. 2 is a block diagram illustrating an embodiment of an Internet-based configuration system in accordance with this invention.

FIG. 3 is a block diagram illustrating the components of an example embodiment of a configuration system in accordance with this invention.

FIG. 4 illustrates an example flow diagram of a system configurator in accordance with this invention.

FIG. 5 illustrates an example flow diagram of a wiring configurator in accordance with this invention.

FIG. 6 illustrates an example flow diagram of a room configurator in accordance with this invention.

FIGS. 7 and 8 are other block diagrams illustrating configuration systems in accordance with the invention.

Throughout the drawings, the same reference numerals indicate similar or corresponding features or functions.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The invention is presented herein using the paradigm of an audiovisual configuration system. As pointed out above, it will be recognized by one of ordinary skill in the art that the principles of this invention will be applicable to configuration systems for other components as well, such as a system for configuring consumer electronics systems such as a computer system, a security system, a home automation system, and so on.

FIG. 1 illustrates an example overview of a configuration system 100 in accordance with this invention. The system 100 includes a processor 110, and one or more databases 120-160 that facilitate the selection and configuration of audiovisual components and systems, in dependence upon consumer information such as preferences, requirements, and/or constraints. In a preferred embodiment, the system allows audiovisual consumers to create highly personalized systems through a simple interface, that allows the consumer or user to create an audiovisual system "from scratch", or to augment an existing system. For example, to ease the task of inputting detailed requirements, the user is able to choose from system templates that facilitate an identification of a general classification underlying the requirements for the system, such as *home theater, dorm, lifestyle, audiophile,* and so on. The processor 110 uses the selected template to guide the subsequent input processes. For example, if the user is an audiophile, the user is presented queries regarding desired frequency response, total harmonic distortion, and so on. These detailed technical queries are bypassed in other templates, and the corresponding parameters are set to contain default parameters, based on the template type. The user also enters basic preferences requirements and constraint such as budget, desired capabilities, room type, and so on. In a preferred embodiment, the user preferences, requirements, constraints, etc. are stored in a user database 120, to avoid having the user re-enter previously submitted information. The processor 110 includes capabilities for the user to edit or delete any previously submitted information.

In a preferred embodiment, the user database contains such items as: compatible inputs and available outputs for common components, frequency, power, performance, color, weight, dimensions, format, size, finish, merchandising classification, placement, intended use, feature set, functionality, compatibility with other components, assigned subjective characteristics including but not limited to reliability, value, listening levels, movie/music preferences, brand preferences, viewing/listening distance, and so on.

Note that, in a preferred embodiment, the consumer is provided the opportunity to enter this information directly, without intervention by a salesperson. In this manner, the consumer may be more inclined to enter accurate information, and a better assessment of the appropriate system for the consumer can be made. That is, for example, a consumer may be more willing to provide a true budget figure, or true room dimensions, to a computerized configuration system

than to a salesperson. In like manner, the consumer is less likely to feel pressured to purchase one particular system or component, because the system is configured to provide recommendations based on the consumer's input, which may be changed at any time.

In response to the user input, directly, or via the user database 120, the processor searches the available product database 130 and provides recommendations. "Database" is meant in a broad sense and encompasses any collection of material that is organized to facilitate retrieval. A database is a logical entity, and may include one or more physical storage devices and one or more sets of database-utilities, such as search and retrieval modules. For example, the database 120 may be a consolidation of audiovisual information at a single server site, or it may be sources of information located at multiple server sites. Preferably, to provide a wide range of options, a database may include sources of information located at Internet sites.

The product database includes a variety of information items and parameters relating to particular products, as well as general information related to specific product lines, multi-component systems, and so on. In a preferred embodiment, the information for each product preferably includes: compatible inputs, available outputs, frequency, power, performance, color, weight, dimensions, format, size, finish, merchandising classification, placement, intended use, feature set, functionality, compatibility with other components, and other parameters and characteristics. For ease of reference, the variety of characteristics or configuration information associated with each product or component in the database is referred to herein as the product's "operational characteristics", even though some characteristics, such as color and finish, may not directly relate to the operation of the product per se.

The processor provides one or more recommendations (configuration information) for products or systems in response to the input consumer information. The user is provided the option of selecting from among the recommendations, or revising the input information and repeating the search. Depending upon the level of detail requested, the processor provides configuration information related to the selected products or system, and also provides information regarding such items as cables and accessories for configuring the system, purchasing information, such as available vendors, the price at each vendor, and so on. A vendor database 150 provides information related to each vendor, including customer satisfaction reports, delivery time statistics, and so on. In cooperation with vendors of the products or

systems, the processor may also provide information regarding product inventory information such as the availability of each component at select vendors, expected delivery time, and so on. Related databases 140 could include information regarding shipping options and providers, tax tables, and general information regarding audiovisual systems, existing and future standards, market trends, and the like.

The processor 110 is configured to store a description of the user's existing system and components in the user database 120. This description may be entered directly by the user, and upgraded automatically as new products are selected via the processor 110. The processor 110 provides the user with the option of editing this database at any time. By maintaining an inventory of each user's existing configuration, each user is able to upgrade or downgrade the system and its components, with minimal effort.

Most consumers already own at least one audiovisual product, and therefore the system 100 is configured to allow the user to create a context within which to select additional audiovisual products. The user is able to enter products they currently own into the system 100, and select from options such as "Add a DVD Player" or "Upgrade to Home Theater." The system 100 matches the system to templates and searches the Product Database for compatibility, correlating the consumer's existing system against known "good systems." The system 100 may provide the user the option of entering as few or as many preferences as the user desires, typically beginning with budget and room type. Users have the option of entering additional preferences including musical and movie tastes (*rock, jazz, classical, rap, action*) ease of use (*system remote, knobs vs. buttons*) and size (*rack, shelf, depth*). The more information submitted, the greater the accuracy and suitability of the processor 110's recommended components.

The construction, operation and use of the configuration system of this invention are illustrated by the following examples:

Example 1: User A wants to buy a home theater for his newly renovated basement. He accesses the system 100, selects the "Home Theater" template, and enters a target budget of $3000. He enters his room size (*16'x25'*) and favorite movie (*Star Wars*). In response to this input information, the system 100 provides at least one audiovisual system configuration, and perhaps alternative products for one or more of the components within the audiovisual system. At varying levels of detail, User A is able to review information associated with each system or

component, such as product reviews, manufacturer's warranties, product specifications, and the like. The system 100 identifies a preferred system configuration, and a preferred set of components, to ease the selection process. The preferred system and components will be based at least in part on the user's preferences, including such items as delivery time, single source supplier, reliability, and so on. Additionally, in conjunction with select vendors, the system 100 may also provide discounts and other promotions to the user. Upon consideration, User A selects a set of components, including a VCR, DVD, HDTV, and a surround-sound system with speakers, and requests a consolidated report. The report includes the selected components, as well as the required cables, connectors, and other items required to interconnect the selected components, the individual prices, and a total system price, including discounts. User A then provides his credit card number, and the system 100 issues one or more purchase orders to the selected vendors to effect the purchase of the selected components and ancillary devices to configure the selected system. The system 100 also provides other configuration information, in the form of instructions, drawings, and schematics for installing each component, and for interconnecting among components. The system 100 also records the information related to this transaction in a database 120 that is associated with User A.

Example 2: A month later, User A decides he wants additional bass. He accesses the system 100, identifies himself, and selects "heavy bass" in the user profile input segment of the system 100. In response to this input, the system 100 recommends a particular subwoofer that is compatible with his existing system, and is suitable in his environment, based, for example on his room size. The system 100 identifies whether additional cabling or connectors are required, based on knowledge of the items included with the recommended subwoofer and knowledge of User A's existing system and environment. The system 100 also provides a wiring diagram and explicit instructions regarding the addition of the subwoofer to the specific components in User A's inventory of audiovisual equipment.

FIG. 2 illustrates an example embodiment of an Internet-based configuration system in accordance with this invention. In this example embodiment, the configuration system is accessed via an Internet connection from a consumer's home 250, or from a kiosk at a retailer's location 260. For example, a consumer may use a PC at home having an input device (e.g., a keyboard, mouse, disc drive, CD reader, etc.) coupled thereto and a display (e.g., a monitor or

printer). A retailer may use a computer, which can be a PC, also having an input device and a monitor coupled thereto. The access rights to the configuration system 100 will be controlled by the provider of the configuration system 100. In one business model, the provider of the configuration system 100 licenses the use of the configuration system 100 to individual retailers. A consumer enters the retail store, logs into the system via a kiosk provided by the retailer, and commences a configuration session. The retailer provides this service in order to distinguish itself from competing retailers, to reduce the workload on sales staff, and to avail itself of the opportunity to sell the selected systems and components to the consumer. In another business model, the consumer interacts with the configuration system 100 directly, via any Internet access device, such as a computer or set-top box in the consumer's home 250. The provider of the configuration system provides this service in return for advertising revenue, by including vendor advertisements during the consumer's interactive sessions. In another business model, the consumer accesses the configuration system 100 from any Internet access device, including a kiosk at the retailer's site 260. In this model, the advertisements provided to the user are related to the particular retailer 260. In related business models, an on-line vendor 270 is provided the same options as the retailer 260.

As illustrated in FIG. 2, the configuration system 100 includes internal databases, and has access via the Internet to other database servers 220. (not illustrated). The consumer site 250 and the retailer site 260 may also include local databases. For example, the local database may reside on the user's home computer (although this would limit the user's ability to recall prior data from other access sites). Similarly, inventory information may be located at each retailer 260 or on-line vendor 270 site. Various structures, locations, and forms of individual databases accessible by the configuration system may be employed and various database storage and access techniques are known in the art. Preferably, the choice of storage and access techniques are such that the user does not become bored or distracted while waiting for the system to provide the requested information. Techniques common in the art for providing "fill-in" material during processing delay times, such as advertisement for related items, are used in a preferred embodiment of this invention.

For ease of reference and understanding, some information items are herein referred to as being stored at or accessed from a particular database, such as the "user database", the "product

database" and so on. It will be evident to one of ordinary skill in the art that this convenience-nomenclature does not limit the principles of this invention to a particular partitioning or structure of the one or more databases that are accessed by the configuration system 100. Except as otherwise noted, the term database encompasses any of the databases 120-160 of FIG. 1, and 210-220 of FIG. 2, and the aforementioned non-illustrated databases at sites 250-270.

In a preferred embodiment, the database contains aggregated information from a wide variety of sources. The database contains at least information regarding audiovisual equipment and may include photographs and user manuals as well. Equipment may include video cassette recorders, camcorders, compact disk players, amplifiers, speakers, cassette decks, televisions, stereos, subwoofers, DVD players, and other audiovisual products. The database may also contain templates for various categories of audio visual systems, room templates, detailed information on preferences, user personal information, and information for determining optimum audio visual systems, wiring configurations and room setups based on the components, user preferences and other relevant information.

In a preferred embodiment, product information is arranged in the database in a hierarchical manner, as follows:

Family (e.g. Audio or Video)

Native Format (e.g. Analog or Digital)

Product Category (e.g. VCR, DVD, Amplifier, Receiver, etc.)

SKU (Specific Product Identification).

As will be evident to one of ordinary skill in the art, alternative structures and relationships may be utilized as well, and particular products may be included as multiple entries in the database.

The database also includes relational items and functions that facilitate an efficient search and retrieval. The following functions are particularly well suited for the retrieval of information in the context of an audiovisual database:

Cross-sell: Items in the database can be related to other items in the database, based on typical companion sales. For example, if a user is selected information on portable CD players, the cross-sell function will facilitate access to information on headphones, AC adapters, batteries, and so on.

Up-sell: Items in the database can be related to other items in the database, based on a hierarchy of product characteristics. The hierarchy is typically related to a particular manufacturer's product line, but may include relationships among competing product lines as well. A variety of hierarchies may be provided, such as hierarchies related to price, performance, reliability, feature sets, and so on. In a preferred embodiment, the up-sell function provides a list of "up-products", and the configuration system filters the list, based on the aforementioned user preferences, requirements, constraints, environment, and so on. The up-sell function may also be used to provide targeted advertisements to the user, either during the initial system configuration session, or during any subsequent session, based on knowledge of the user's current inventory of equipment.

Other functions are also provided to provide information related to identified products or classes of products, including functions that provide related warranty or rebate information for each product, service contact information, and other information, at various levels of detail and functionality.

Detailed information stored in the database may include specifications from published guides and books. This may also include specifications from manufacturer's data. Branded third-party reviews and for-staff reviews may also be stored in the database. Such reviews may cover a wide variety of topics, such as ease of use, aesthetics, room placement and subjective sound quality. The database may include community reviews such as owner comments, surveys and polls as well as recent product news, news on new products, industry news, etc. Such information can be linked to new product releases and users may elect to receive such information via e-mail. Through polls, surveys and discussion groups, site visitors may contribute data that will enhance the value and accuracy of the information stored on the database.

Also preferably included in the database is system matching and compatibility information. This information may include objective and subjective information such as the quality of a product positioned in a room of a particular size. For example, a particular speaker may work well for large rooms. The database may also store combinations of products that are known to work well together. This information is compiled through community submissions, in-house experience and review data. Photo and user manuals may also be housed in the database. This information may be drawn from manufacturer's literature and CD-ROMs. Connection

mapping information including component terminal configurations may also be stored in the database. This information may include connection information for use by the consumer, as well as consumer service and sales support personnel.

In a preferred embodiment, a natural language database is provided to answer questions regarding common problems, incorporating data from product manuals, manufacturer CD-ROMS, prior consumers, community postings and in-house experience.

As noted above, the database also contains information related to each user, and each user's environment(s). Users are able to enter their existing products, systems and entertainment preferences into personal profiles that are saved and retrieved during each visit to the Web site. These profiles are used to create a customized shopping experience, as well as to inform consumers of specific new product releases and updates that will be of interest. This information is also used to customize the consumer's experience while shopping at any co-branded entertainment retail sites, such as CD, video and ticket sales.

FIG. 3 illustrates an example block diagram of the components of an example embodiment of a configuration system in accordance with this invention. In this example embodiment, the functions of the processor 110 are partitioned into three sub-systems: a system configurator 310, a wiring configurator 320, and a room configurator 330. As with the database partitioning, it will be recognized by one of ordinary skill in the art that the principles of this invention are not limited to the particular configuration of FIG. 3.

The system configurator 310 provides the majority of the features, discussed above, related to the selection of components and systems in response to consumer information. The system configurator 310 operates in conjunction, as required, with the wiring 320 and room 330 configurators. In a preferred embodiment, the system configurator 310 allows for multiple concurrent versions of recommended and actual systems, to allow for "what-if" comparisons of various configurations by the user. The user database is similarly structured to contain the user's actual system, as well as one or more hypothetical systems, to allow the user to create a preferred system configuration through multiple access-sessions with the system configurator 310, and the other configurators 320, 330.

General information about the layout configuration content and acoustical parameters of a room may be entered via the room configurator 330 for variety of purposes. This information is

used, for example, to determine components that are suitable for the room based on the parameters entered. For example, large speakers in a small space may not be convenient. Low power speakers in a large space may not be effective. In like manner, the required power output of a system, or the appropriate size of a display screen, can be provided, based on the input room configuration, as well as the user preferences.

In a preferred embodiment, the room configurator 330 allows consumers to select from various blank "Room Templates," into which they are able to drag- and drop- icons representing furniture, flooring, drapes, carpets, and so on. The user is also able to enter preferences and constraints, including but not limited to: furniture type, location and size; placement, nature, size and brightness of natural and artificial light sources; dimensions of room, nature and finish of floors, walls, ceilings and doors; listening/viewing/working positions; location of available electrical sources, and so on.

The user is also provided the option of defining and storing multiple rooms and corresponding component placements relative to each other, in order to generate recommendations for multiple room/whole home/office profiles, individually or collectively.

The room configurator 330 draws upon the "Good Systems" designation in the database, and the consumer's stored profile, if available, to provide recommendations based on room acoustics and product placement in the consumer's home. Additionally, in conjunction with the wiring configurator 320, the user is provided information regarding the amount of wire or other connection devices necessary to set up selected components in the specified room. The room configurator 330 includes audiovisual-specific query templates, including such questions as "Subwoofer placement preference", with selection options of "Against a wall", "Out of sight", "Near source", and so on. Alternatively, the user is provided the option of explicitly placing components within the room. In a preferred embodiment, the room configurator 330 can assess a proposed layout, including user-specified and system-recommended placements of components, and provide other recommendations, or point out particular problems with the proposed layout.

The wiring configurator 320, in conjunction with the system 310 and room 330 configurators, provides an analysis of the selected system or components to determine how each component is best integrated into the system. Based on the connections (terminals) information entered for each product in the database, and coding and logic discussed below, the wiring

configurator 320 generates wiring diagrams for any feasible combination of products in the product database. This is facilitated by having the input and output terminals for each product stored. The electrical and physical characteristics of each terminal are preferably coded in a standard form. For example, a CD player's left audio output, regardless of the CD vendor, is encoded using a consistent code for left-audio-output. In like manner, common terminal types, such as "RCA-phono-female", or "Screw-terminal-Phillips", have consistent codes. In a preferred embodiment, the component descriptions include the actual location of each terminal, as either an annotated figure, or as coordinate information, from which a figure can be drawn. The wiring configurator 320 includes general mapping logic that dictates which terminals of which devices should be connected together (e.g. "left-audio-output" to "left-audio-input", "player devices" to "rendering devices", "pre-amp-output" to "amp-input", and so on). In a preferred embodiment, the wiring configurator 320, and the other configurators 310, 330, include reasoning devices and systems, such as Expert Systems, Knowledge-based Systems, Learning Systems, and so on, to facilitate the creation of efficient and effective wiring and configuration diagrams and corresponding instructions.

The wiring configurator 320 accesses the database to determine the appropriate cables, wires, connectors, adapters, switches, distributors, transmitters, or receivers, to effect the desired system configuration. The required connection items are communicated to the user for subsequent selection and purchase, as desired.

The processor 110 also provides an optional "shopping cart" module 340, which may be included in the system configurator 310, or the other configurators, as desired. The shopping cart 340 allows a user to purchase audiovisual equipment via the audiovisual configuration system 100. To make a purchase, the consumer need only place the desired audio visual equipment into a virtual shopping cart and provide the information necessary for the transaction, e.g., shopping and billing address, credit card information, etc. The shopping cart carries out the remaining steps required to make the purchase from one or more merchants. As in conventional shopping cart processes, the consumer may view his or her purchases, and add or delete items from the shopping cart, preferably without reloading the main screen.

The configuration system 100 also provides for at-home setup and troubleshooting information and assistance. Once audiovisual equipment has been purchased, the user may

request assistance in setting up the equipment via the room 330 and wiring 320 configurators, and may purchase installation assistance, via the shopping cart 340. If the user makes changes to the system, such as by rearranging the placement of items, the room 330 and wiring 320 configurators can be re-accessed to provide installation instructions, as required, and to provide information regarding additional wiring or cabling that may be necessary. Thus, the present invention provides a full service system from beginning to end.

FIG. 4 shows an example flow chart of system configuration process 400, as may be used in the system configurator 310 of FIG. 3. The system configurator 310 provides consumers with the ability to create personalized audiovisual systems through a simple interface. The consumer may select "System Configurator" to initiate the system configuration process, to either create a new system or modify an existing system. If the user is configuring a new system, or is a new user to the system, the user chooses a template, at 410, to facilitate the entry of data items, and to create a user profile, at 420, with particular default parameter values, depending upon the selected template. In a preferred embodiment, the selectable system templates include home, theater, dorm, lifestyle, audiophile, and other applicable categories. If the user has an existing system, the process continues at 425, discussed below.

The user who desires to configure a new system selects preferences, at 430, which will be applied to modify the characteristics of a particular template, and to adjust the parameters of the user profile, to create a more personalized system. Preferences may include parameters such as a defined budget, a room type or room size, a minimum or maximum power requirement, a brand preference, preferences for types of music, sound quality, ease of use, size, etc. The user may also selectively upgrade or downgrade particular component criteria or defaults. After processing the user's preferences and criteria, the database is searched, at 440, for components and systems that conform to the user's profile of requirements, preferences, constraints, and so on. The recommendations are provided to the user, at 450. Recommended systems may include other important information, such as a list of needed cables and accessories, as discussed above, and as discussed hereinafter with regard to the wiring and room configuration processes 500, 600.

Note that in a preferred embodiment, the user interface allows for a smooth transition among the variety of processes 400, 500, 600, and other processes. The individual processes are configured to provide particular services in an optimal manner, but, ideally, the user is not aware

of boundaries between these processes. Conceptually, all information is integrated and easily available among the variety of processes, so that the user can easily switch contexts, regardless of the particular structure used to provide the processes.

In a preferred embodiment, user-focused categories are also provided. For example, pre-packaged systems can be merchandised by lifestyle, such as living room, dormitory, theater, kitchen, and other types of rooms. These categories may further be segregated within price range by the level of performance. These and other arrangements of information will be evident to one of ordinary skill in the art in view of this disclosure.

If the user is updating a system, the path 415-435 is used to determine the user's current request. If the user is a prior-user of the configuration system, the user's profile is retrieved, at 415. Note that, in a preferred embodiment, a user may have multiple profiles: a home profile, an office profile, an entertainment-center profile, and so on. Common information, such as the user's identification, common characteristics, etc. is shared among each profile, to minimize the entry of redundant information. For ease of reference, the user profile presented herein is the currently selected user profile, if the user has multiple profiles.

The user may update the user profile, at 425, by identifying any changes, and adding any items in the user's inventory that have not yet been added. A new user (from step 420) uses this step 425 in the process to define an existing system, and to update any other information in the user profile. The user selects preferences, at 435, similar to configuring a new system, at 430. A different 'select preference' block 435 from the 'selection block' 430 is shown in FIG. 4, to illustrate that the process 400 is context sensitive. Although the user has access to the same capabilities in blocks 430 and 435, the process 400 is configured to present different series of questions and interfaces, depending upon whether the user is creating a new system or merely adding a component. In like manner, each functional block in the figures of this disclosure could be represented as different blocks, depending upon the current context of the corresponding process. For convenience, a single block is illustrated for a common functional task.

As noted above, the user is provided the option of entering as few or as many preferences as desired. Users may specify musical preferences, such as jazz, classical, or rock and movie preferences, such as romance, action, or horror. Other preferences may include ease of use, such

as system remote, knobs or buttons. A physical preference may include the size, such as rack, shelf or depth.

The database is searched, at 440, by applying the user's preferences and considering compatibility issues thereby correlating the user's existing system with a known combination of equipment that is compatible and in accordance with the inputted user preferences to generate recommendations. The recommendations are then presented to the user, at 450.

At 460, the user is provided the option of selecting recommended systems or components, or, if desired, the option of updating the user profile and repeating the process, from 425. Note that the selection may be based upon information that is gained via the wiring or room configuration processes 500, 600. That is, for example, in choosing between components, the user may base this choice on the complexity of interconnecting each component to the system, the suitability of the component with the user's environment, and so on.

As noted above, a separate 'shopping-cart' process may be provided to facilitate the purchase of selected components or systems, and related products. The purchase process is illustrated in FIG. 4 as being included within the system configuration process 400, at 470. As noted above, this process 470 is preferably configured to also facilitate the purchase of ancillary equipment, cabling, and so on, as well as the purchase of services for installing the purchased equipment.

At 480, the user's profile is updated, reflecting not only the newly acquired equipment, but also any characteristics of the user profile that was learned from this encounter with the user, and previous encounters. As noted above, for example, the system 100 may include expert systems, knowledge based system, learning systems, and the like that facilitate the determination of appropriate equipment for the user. In accordance with this invention, these expert and other systems can be used to update the user profile. For example, if the user classifies himself as an audiophile, but always chooses below-average components, the expert and other systems may be configured to modify the user's classification, preferably in a discreet manner. Personalization is an important aspect of a consumer's shopping experience. A user may enter product, system and entertainment preferences into personal profiles that will be saved and retrieved during each visit to the web site. The user may also enter personal information including e-mail address, telephone numbers, billing address, credit card information, etc. These profiles may be used to create a

customized shopping experience, as well as inform the user 50, 52 of new product releases and updates.

FIG. 5 shows an example flow chart for a wiring configuration process 500, as may be used in the wiring configurator 320 of FIG. 3. The wiring configuration process 500 generates an instructional set-up diagram based on the user profile and the system configuration that was selected via the system configuration process 400. After this information is obtained, at 510, 520, the wiring configuration process determines the wiring requirements for effecting the selected configuration, at 530. The user profile includes the user's existing components and devices, and the wiring configuration process determines the additional wiring and other interconnection requirements in view of the existing configuration. The wiring requirements are processed, at 540, using information that is stored in the database regarding connection mapping. The recommended wiring and other devices required to effect the intended system configuration is provided to the user, at 550, and the user is provided the opportunity to purchase any of the recommended items, at 560. The information concerning how the systems should be wired is also provided, at 570, including schematics, pictorial diagrams, and text instructions to the user. Not illustrated, the instructional information may also be stored, at either the server that provides the configuration system, or at the user's site. Thereafter, the stored instructional information and stored wiring diagram may be accessed for use in at-home setup or troubleshooting.

As discussed above, the wiring configuration process 500 may be used in conjunction with the system configuration process 400 and the room configuration process 500. For example, the amount of wire necessary to connect the selected components may be determined based on the dimensions provided in the room configuration process 600. In like manner, particular components may be selected during the system configuration process 400, depending upon the information provided by the wiring configuration process 500 regarding the complexity, or cost, of interconnecting particular components to the other components of the system.

FIG. 6 is an example flow chart of a room configuration process 600, as may be used in the room configurator 330 of FIG. 3. The room configuration process 600 is intended to facilitate the optimal placement of an audiovisual product, or the components of an audiovisual system, in the user's environment. The term "room" is used herein for ease of reference. The area being configured may be an entire house, an auditorium, a theatre, and so on. The user is provided the

option of selecting a room template, at 610, or retrieving an existing profile that contains the room information, at 615. Room templates preferably include specifications regarding the length, width, height of the ceiling, placement of windows and doors, and other similar specifications. The user configures the room to correspond to the user's environment, at 620, preferably by dragging and dropping icons representing typical items found in a room. The material, measurement, and other characteristics of the icons may also be specified by the user during this process. The user selects the audiovisual component or components to be placed in the room, at 630, based on the information regarding the current system configuration, via the system configuration process 400. The room configuration process 600 provides placement options such as "against the wall", "hidden", and so on. The room configurator accesses the database to output a highly accurate recommendation based on the audio visual components specified, the room characteristics, and any user preferences, requirements, or constraints, at 640. The room configuration process, at 640, may also suggest moving a particular piece of furniture to maximize audio or visual performance. Alternatively, the room configurator may be used to facilitate the specification of a user-determined placement. The user's profile is updated with the specified room configuration and the placement of components, at 660. As noted above, the room configuration process 600 operates in conjunction with the system and wiring configuration processes 400, 500, to receive and provide configuration and other information as required.

In the embodiment depicted in FIG. 7, the configuration system 700 includes a computer 702, an input device 704, and a display 706. The input device 702 is conventional, implemented, for example, by a keyboard, pointing device (e.g., a mouse), or disc drive or CD reader, or another computer, etc. Similarly the display 704 is conventional, implemented, for example, by a monitor, printer, etc. The computer 702 accesses a database 706, implemented as discussed herein.

Referring to FIG. 8, the integrated system 100 includes a central station 10, which may include a server 12, a processor 14, and a database 16. The server 12 retrieves product information from database 16. Central system 10 may include a server 12 as shown or the system 100 may be implemented on a network (wired or wireless), on the Internet or an intranet, on a stand alone personal computer, at a kiosk in a store on in any other suitable manner. In

other words, the system 100 is not hardware or architecture dependent and thus can be implemented using any suitable hardware.

Database 16 contains aggregated information from a wide variety of sources. Database 16 contains at least detailed information regarding audio visual equipment and may include photographs and user manuals as well. Equipment may include video cassette recorders, camcorders, compact disk players, amplifiers, speakers, cassette decks, televisions, stereos, subwoofers, DVD players, and other audio visual products. Database 16 may also contain templates for various categories of audio visual systems, room templates, detailed information on preferences, user personal information, and information for determining optimum audio visual systems, wiring configurations and room setups based on the components, user preferences and other relevant information.

Detailed information stored in database 16 may include specifications from published guides and books. This may also include specifications from manufacturer's data. Branded third-party reviews and for staff reviews may also be stored in database 16. Such reviews may cover a wide variety of topics, such as ease of use, aesthetics, room placement and subjective sound quality. Database 16 may include community reviews such as owner comments, surveys and polls as well as recent product news, news on new products, industry news, etc. Such information can be linked to new product releases and users may elect to receive such information via e-mail. Through polls, surveys and discussion groups, site visitors may contribute data that will enhance the value and accuracy of the information stored on the database.

Also preferably included in database 16 is system matching and compatibility information. This information may include objective and subjective information such as the quality of a product positioned in a room of a particular size. For example, a particular speaker may work well for large rooms. Database 16 may also store combinations of products that are known to work well together. This information is compiled through community submissions, in-house experience and review data. Photo and user manuals may also be housed in database 16. This information may be drawn from manufacturer's literature and CD-ROMs. Connection mapping information including component terminal configurations may also be stored in

database 16. This information may include connection information for use by the consumer, as well as consumer service and sales support personnel.

One or more remote users 50, 52 may access the system configurator 20, the wiring configurator 30, and the room configurator 40 or any combination thereof. Configurators 20, 30 and 40 are included in processor 14. Processor 14 is connected to server 12 so that database 16 can be accessed by each configurator 20, 30, 40 through server 12. In addition, processor 14 can be employed by any of the configurators 20, 30 and 40 to process information from database 16, information input by a user 50, 52 or a combination thereof. Another feature of the system 100 is a shopping cart which may be employed in conjunction with the system configurator 20 or on its own to allow a user 50, 52 to make purchases of audio visual equipment. To make a purchase, the consumer need only place the desired audio visual equipment into the virtual shopping cart and provide the information necessary for the transaction, e.g., shopping and billing address, credit card information, etc., and the shopping cart will carry out the remaining steps required to make the purchase from one or more merchants 60 or by third party 90. Merchant 60 may be notified of a consumer's purchase through the central station 10. The consumer may view his or her purchases. Items may be added to or deleted from the shopping cart without reloading the main screen. System 100 also provides for at-home setup and troubleshooting 80. Once audio visual equipment has been purchased, the user may request assistance in setting up the equipment at the consumer's home or other place specified via the at-home setup and troubleshooting 80. Thus, the present invention provides a full service system from beginning to end.

The foregoing merely illustrates the principles of the invention. It will thus be appreciated that those skilled in the art will be able to devise various arrangements which, although not explicitly described or shown herein, embody the principles of the invention and are thus within its spirit and scope. For example, a preferred embodiment includes one or more of the following features:

Consumer Focused Categories - pre-packaged systems merchandised by lifestyle (*Living Room, Dorm Theater, Kitchen, etc.*) and segregated within each price range by "Good-Better-Best."

Framed Shopping Cart - the symbiotic nature of audiovisual products dictates that consumers be able to see their purchases at all times. Items can be added to or deleted from the shopping cart frame without reloading the main screen.

One-Click Ordering - for faster, simpler shopping.

System Basket - this enhanced shopping cart will allow returning consumers to view their existing systems as separate entities on or site. Consumers will be able to name their systems (*Main System, Home Theater, Basement etc.*) in profiles stored on the system's servers.

Gift Mailing - with selectable packaging and cards.

Credit Card Tracking - to alleviate repeat submission of card data, to allow the use of multiple credit cards, to notify the user of expiration dates, and so on.

Selectable Shipping Methods, including product-specific shipping methods.

Third Party Financing -customers will be able to finance part or all of their purchases, including online financing through a third-party partnership, with real-time credit checking.

Order Tracking - via arrangements with major carrier online tracking systems such as *UPS, Federal Express* and the *U.S. Postal Service.*

Active consumers may receive "Points" redeemable toward future purchases. These points will be earned on purchases through the site operator as well as for filling out feedback forms and surveys. Points will be a method of rewarding consumers for their loyalty, encouraging them to buy all their entertainment hardware and software through the provider of the configuration system.

These and other system configuration and optimization features will be evident to one of ordinary skill in the art in view of this disclosure, and are included within the scope of the following claims.

CLAIMS

1. A method carried out with the aid of a computer system for providing configuration information relating to consumer electronics systems, comprising the steps of:

storing in the computer system at least technical and price information relating to a plurality of components from which a plurality of consumer electronics systems can be configured;

inputting consumer information to the computer system relating to at least one characteristic of a consumer electronics system or component; and

obtaining from the computer system configuration information relating to a consumer electronics system.

2. The method of claim 1 wherein the step of storing comprises storing information relating to a plurality of the following component characteristics: inputs; outputs; power requirements; performance specifications; color; weight; dimensions; format; size; finish; merchandising classification, placement; intended use(s); feature set; functionality; compatibility with other components; reliability; pricing.

3. The method of claim 1 wherein the step of inputting comprises inputting information relating to a plurality of the following consumer characteristics: general consumer electronics system classification; performance characteristics; pricing; power; color; dimensions; format; size; finish; placement; intended use, including intended use with other components or within a consumer electronics system; feature set; functionality.

4. The method of claim 1 wherein the step of obtaining comprises obtaining information from the computer system identifying at least one consumer electronics component in the context of at least one consumer electronics system.

5. The method of claim 1 wherein the step of obtaining comprises obtaining information from the computer system relating to at least one of: connection of at least one consumer electronics component in at least one consumer electronics system; and physical placement of at least one consumer electronics component in a room.

6. The method of claim 1 wherein the step of storing comprises storing information relating to at least one of audiovisual consumer electronics components and systems, the step of inputting comprises inputting information relating to at least one of audiovisual consumer

electronics components and systems, and the step of obtaining comprises obtaining information relating to at least one of audiovisual consumer electronics components and systems.

7. A computer system for providing configuration information relating to consumer electronics systems, comprising:

a data storage device in which is stored at least technical and price information relating to a plurality of components from which a plurality of consumer electronics systems can be configured;

a processor configured to access the data storage device and receive consumer information input to the computer system relating to at least one characteristic of a consumer electronics system or component; and

programming executable by the processor to provide configuration information relating to a consumer electronics system based on information stored in the storage device and information input to the computer system.

8. The computer system of claim 7 wherein the storage devices stores information relating to a plurality of the following component characteristics: inputs; outputs; power requirements; performance specifications; color; weight; dimensions; format; size; finish; merchandising classification, placement; intended use(s); feature set; functionality; compatibility with other components; reliability; pricing.

9. The computer system of claim of claim 7 wherein the processor is configured to receive the following consumer characteristics information: general consumer electronics system classification; performance characteristics; pricing; power; color; dimensions; format; size; finish; placement; intended use, including intended use with other components or within a consumer electronics system; feature set; functionality.

10. The computer system of claim 7 wherein the processor is programmed to identify at least one consumer electronics component in the context of at least one consumer electronics system from the stored and input information.

11. The computer system of claim 7 wherein the processor is programmed to provide information relating to at least one of: connection of at least one consumer electronics component in at least one consumer electronics system; and physical placement of at least one consumer electronics component in a room from the stored and input information.

12. The computer system of claim 7 wherein the storage device stores information relating to at least one of audiovisual consumer electronics components and systems, the processor is configured to receive information input to the computer system relating to at least one of audiovisual consumer electronics components and systems, and the processor is programmed to provide information relating to at least one of audiovisual consumer electronics components and systems from the stored and input information.

13. The computer system of claim 7, wherein the storage device stores a database managed by the computer system, the database holding the component technical and price information.

14. The computer system of claim 7 comprising an input device coupled to the processor.

15. The computer system of claim 14 wherein the input device includes at least one of a keyboard and a mouse.

16. The computer system of claim 7 wherein the processor's coupled to a communications network and is configured to secure consumer information from the communications network.

17. A system for providing configuration information relating to consumer electronics systems, comprising:

a database that stores component information that includes operational characteristics of a plurality of available components,

a processor that is configured to receive consumer information input to the system relating to configuring a system that includes a plurality of components,

wherein

the processor is further configured to identify at least one plurality of selected components based on the input consumer information and the stored component information.

18. The system of claim 17 wherein the consumer information include at least one of: compatible inputs, available outputs, frequency, power, and performance.

19. The system of claim 17 wherein the stored information also includes costs associated with the plurality of available components, and the consumer information constraints include a cost target, and wherein

the processor is further configured to identify the plurality of selected components based further upon a corresponding cost of the plurality of selected components relative to the cost target.

20. The system of claim 17 wherein the component information also includes inter-connection options associated with each available component of the plurality of available components, and

the processor includes a wiring configurator that is configured to determine a set of selected interconnect devices for interconnecting the selected components of the plurality of selected components in dependence upon the component information and the interconnect options associated with each of the selected components.

21. The system of claim 20 wherein the component information stored in the database includes operational characteristics of each available interconnect device of a plurality of available interconnect devices, and

the wiring configurator determines the set of selected interconnect devices based on the operational characteristics of each available interconnect device, the set of selected interconnect devices being selected from the plurality of available interconnect devices.

22. The system of claim 20 wherein the plurality of available interconnect devices includes at least a plurality of cables, wires, connectors, adapters, switches, distributors, transmitters, and receivers.

23. The system of claim 20, wherein the processor further provides graphic information representing the plurality of selected components, as interconnected using the plurality of selected interconnect devices.

24. The system of claim 20, wherein the processor further provides a set of instructions that facilitates interconnecting the plurality of selected components using the plurality of selected interconnect devices.

25. The system of claim 17, wherein the processor is further configured to determine the at least one plurality of selected components based on an environment input to the processor in which the plurality of selected components are to operate.

26. The system of claim 17, wherein the processor includes a room configurator that is configured to facilitate creation and modification of a data set that serves to describe the

environment in which the plurality of selected components are to operate in dependence upon environment information input to the processor.

27. The system of claim 17, wherein the processor is further configured to issue purchase requests to one or more merchants for acquiring one or more of the components identified by the processor.

28. The system of claim 27, wherein the plurality of available components is formulated based on information provided by one or more merchants.

29. The system of claim 17, wherein the consumer information includes a specific identification of one or more selected components to be included in the plurality of selected components.

30. The system of claim 17 wherein the database is distributed among a plurality of storage devices.

31. The system of claim 17 wherein the processor is configured to access at least one of the plurality of storage devices on the Internet.

32. A method of facilitating a purchase of one or more selected components, comprising the steps of:

storing in a database component information that includes operational characteristics of a plurality of available components,

receiving user information;

identifying a plurality of selected components based on component information and user information the selected components being identified from the plurality of available components.

33. The method of claim 32 wherein the component information includes operational characteristics including at least one of: compatible inputs, available outputs, frequency, power, and performance.

34. The method of claim 32 wherein the component information includes costs associated with the plurality of available components, and

the user information includes a cost target, and

wherein identifying the plurality of selected components is based further upon a corresponding cost of the plurality of selected components relative to the cost target.

35. The method of claim 32 wherein the component information also includes interconnection options associated with each available component of the plurality of available components, and including the step of determining a set of selected interconnect devices for interconnecting the selected components of the plurality of selected components in dependence upon the operational characteristics and the interconnect options associated with each of the selected components.

36. The method of claim 35 wherein the component information stored in the database includes operational characteristics of each available interconnect device of a plurality of available interconnect devices, and including the steps of

determining the set of selected interconnect devices is based on the operational characteristics of each available interconnect device, the set of selected interconnect devices being selected from the plurality of available interconnect devices.

37. The method of claim 35 wherein the plurality of available interconnect devices includes at least a plurality of cables, wires, connectors, adapters, switches, distributors, transmitters, and receivers.

38. The method of claim 35, including the step of providing a graphic representation of the plurality of selected components, as interconnected using the plurality of selected interconnect devices.

39. The method of claim 35 including the step of providing a set of instructions that facilitates interconnecting the plurality of selected components using the plurality of selected interconnect devices.

40. The method of claim 32, including the step of determining the at least one plurality of selected components based on the environment of use information.

41. The method of claim 40 including the step of providing a data set that serves to describe the environment in which the plurality of selected components is to operate.

42. The method of claim 32 including the step of issuing purchase requests for acquiring one or more of the selected components identified by the method.

43. The method of claim 32, wherein the user information includes a specific identification of one or more selected components to be included in the plurality of selected components identified by the method.

44. The method of claim 32 including the step of identifying one or more alternative components related to the components identified by the method, via at least one of: a cross-product access function, and an up-product access function.

45. A system for providing wiring information for interconnecting components in an electronics system comprising:

a database that includes component information that includes interconnect features of a plurality of available components, and

a processor that is configured to receive an identification of a plurality of selected components, the selected components being selected from the plurality of available components, and to determine a set of selected interconnect devices for interconnecting the selected components of the plurality of selected components in dependence upon the interconnect features associated with each of the selected components.

46. The system of claim 45 wherein the database includes operational characteristics of each available interconnect device of a plurality of available interconnect devices, and

the processor is configured to determines the set of selected interconnect devices based on the operational characteristics of each available interconnect device, the set of selected interconnect devices being selected from the plurality of available interconnect devices.

47. The system of claim 45 wherein the plurality of available interconnect devices includes at least a plurality of cables, wires, connectors, adapters, switches, distributors, transmitters, and receivers.

48. The system of claim 45 wherein the processor is configured to provide a graphic information representing of the plurality of selected components interconnected using the plurality of selected interconnect devices.

49. The system of claim 45 wherein the processor is configured to provide a set of instructions that facilitates interconnecting the plurality of selected components using the plurality of selected interconnect devices.

50. The system of claim 45 wherein the processor is configured to determine the at least one plurality of interconnect devices based on an environment in which the plurality of selected components are to operate.

51. The system of claim 45 wherein the processor includes a room configurator that is configured to provide a data set describing the environment in which the plurality of selected components are to operate.

52. The system of claim 45 wherein the processor is further configured to issue purchase requests to one or more merchants for acquiring one or more of the selected interconnect devices.

53. A method of facilitating a purchase of one or more interconnect devices, comprising the steps of:

storing in a database component information that includes interconnect features of a plurality of available components,

receiving an identification of a plurality of selected components, the selected components being selected from the plurality of available components, and

identifying a set of selected interconnect devices for interconnecting the selected components of the plurality of selected components in dependence upon the interconnect features associated with each of the selected components..

54. The method of claim 53 including the step of providing a graphic representation of the plurality of selected components interconnected using the plurality of selected interconnect devices.

55. The method of claim 53 including the step of providing a set of instructions that facilitates interconnecting the plurality of selected components using the plurality of selected interconnect devices.

56. The method of claim 53 including the step of issuing purchase requests for acquiring one or more of the selected interconnect devices.

57. A configuration system for configuring an electronics system comprising:

a user database that is configured to contain a user profile that is related to characteristics of an electronics system comprising a plurality of components associated with the user, and

at least one of:

a system configurator that is configured to facilitate an identification of one or more available components for use in the system, based on the user profile,

a room configurator that is configured to facilitate an identification of physical placements of one or more components of the plurality of components, based on the user profile, and

a wiring configurator that is configured to facilitate an identification of interconnection materials for connections among the plurality of components, based on the user profile.

58. The configuration system of claim 57 wherein the user profile includes a unique identifier that is associated with the user, and

the configuration system is configured to facilitate storage and retrieval of the user profile, based on the unique identifier.

59. The configuration system of claim 58 wherein the user database is further configured to store multiple user profiles associated with the user which may be retrieved by the configuration system.

60. The configuration system of claim 57 wherein each of the at least one system, room, and wiring configurators are configured to provide access to the user database to facilitate retrieval, modification, and storage of the user profile.

61. A computer system for providing configuration information relating to electronics systems, comprising:

a data storage device in which is stored at least technical and price information relating to a plurality of components from which a plurality of electronics systems can be configured;

a processor configured to access the data storage device and receive information input to the computer system relating to at least one characteristic of an electronics system or component; and

programming executable by the processor to provide configuration information relating to an electronics system based on information stored in the storage device and information input to the computer system.

62. A system for providing configuration information relating to electronics systems, comprising:

a database that stores component information that includes operational characteristics of a plurality of available components,

a processor that is configured to receive user information input to the system relating to configuring a system that includes a plurality of components,

wherein

the processor is further configured to identify at least one plurality of selected components based on the input user information and the stored component information.

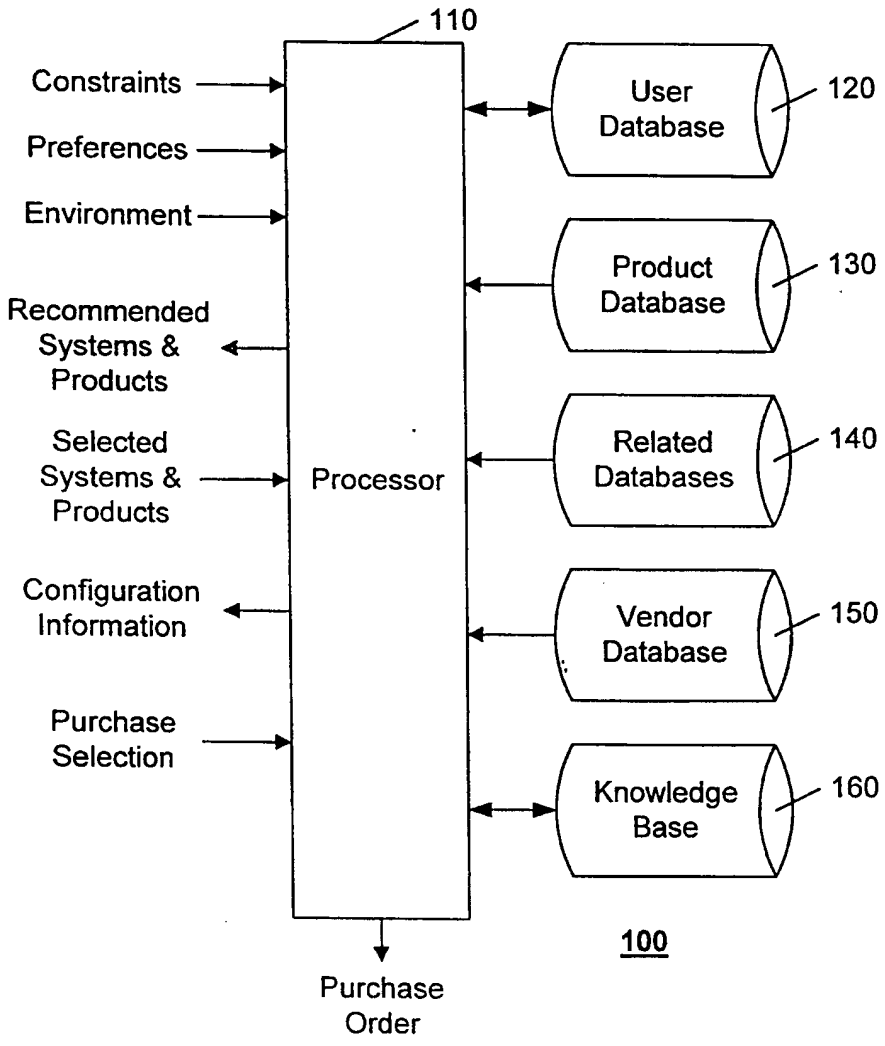
110
Constraints
Preferences
Environment
Recommended Systems & Products
Selected Systems & Products
Configuration Information
Purchase Selection
Processor
Purchase Order
User Database
120
Product Database
130
Related Databases
140
Vendor Database
150
Knowledge Base
160
100

FIG. 1

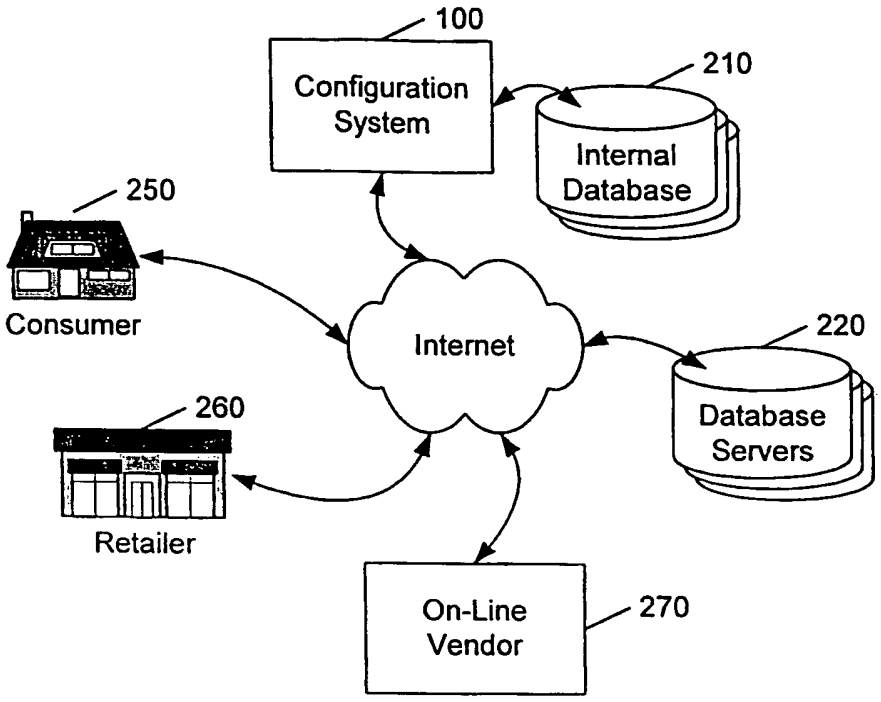
100
Configuration System
210
Internal Database
250
Consumer
Internet
220
Database Servers
260
Retailer
On-Line Vendor
270

FIG. 2

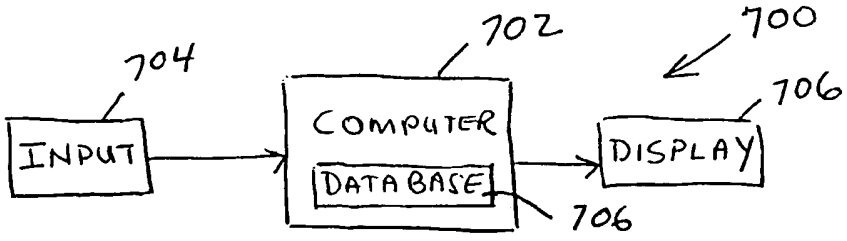
704
INPUT
702
COMPUTER
DATA BASE
706
700
706
DISPLAY

Fig. 7

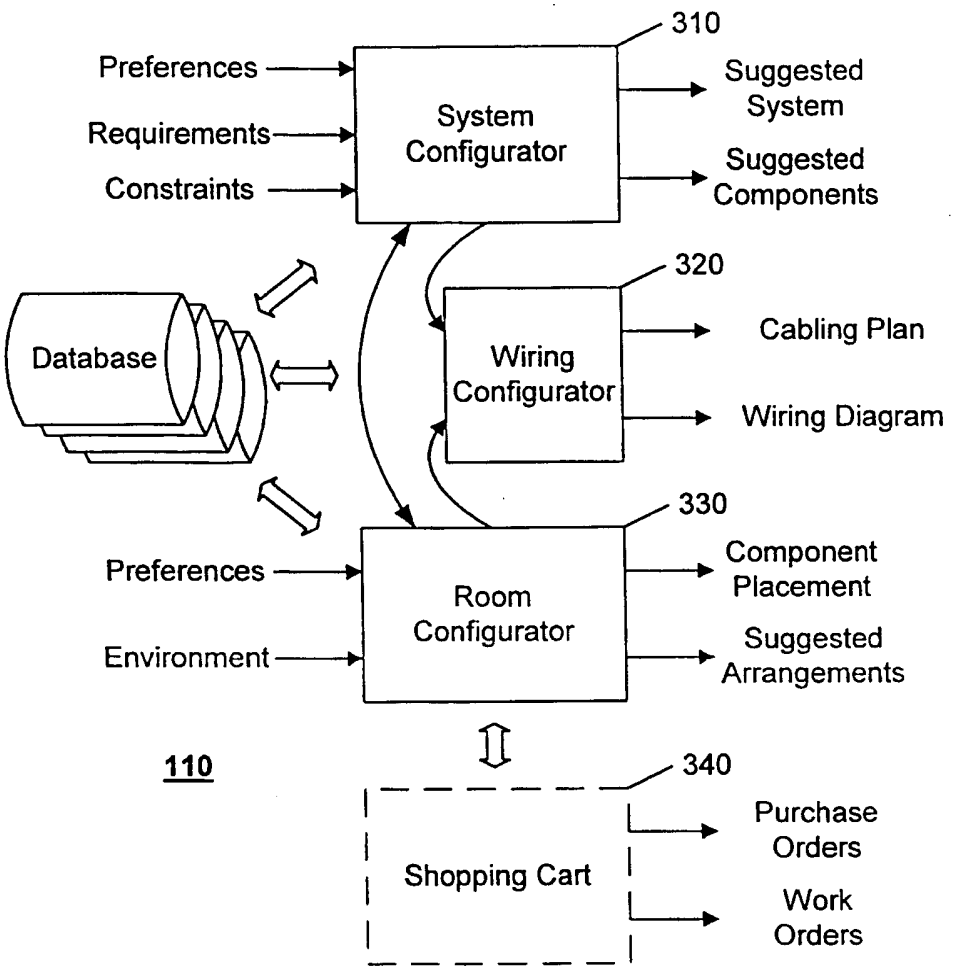
310
Preferences
Requirements
Constraints
System Configurator
Suggested System
Suggested Components
320
Database
Wiring Configurator
Cabling Plan
Wiring Diagram
330
Preferences
Environment
Room Configurator
Component Placement
Suggested Arrangements
110
340
Shopping Cart
Purchase Orders
Work Orders

FIG. 3

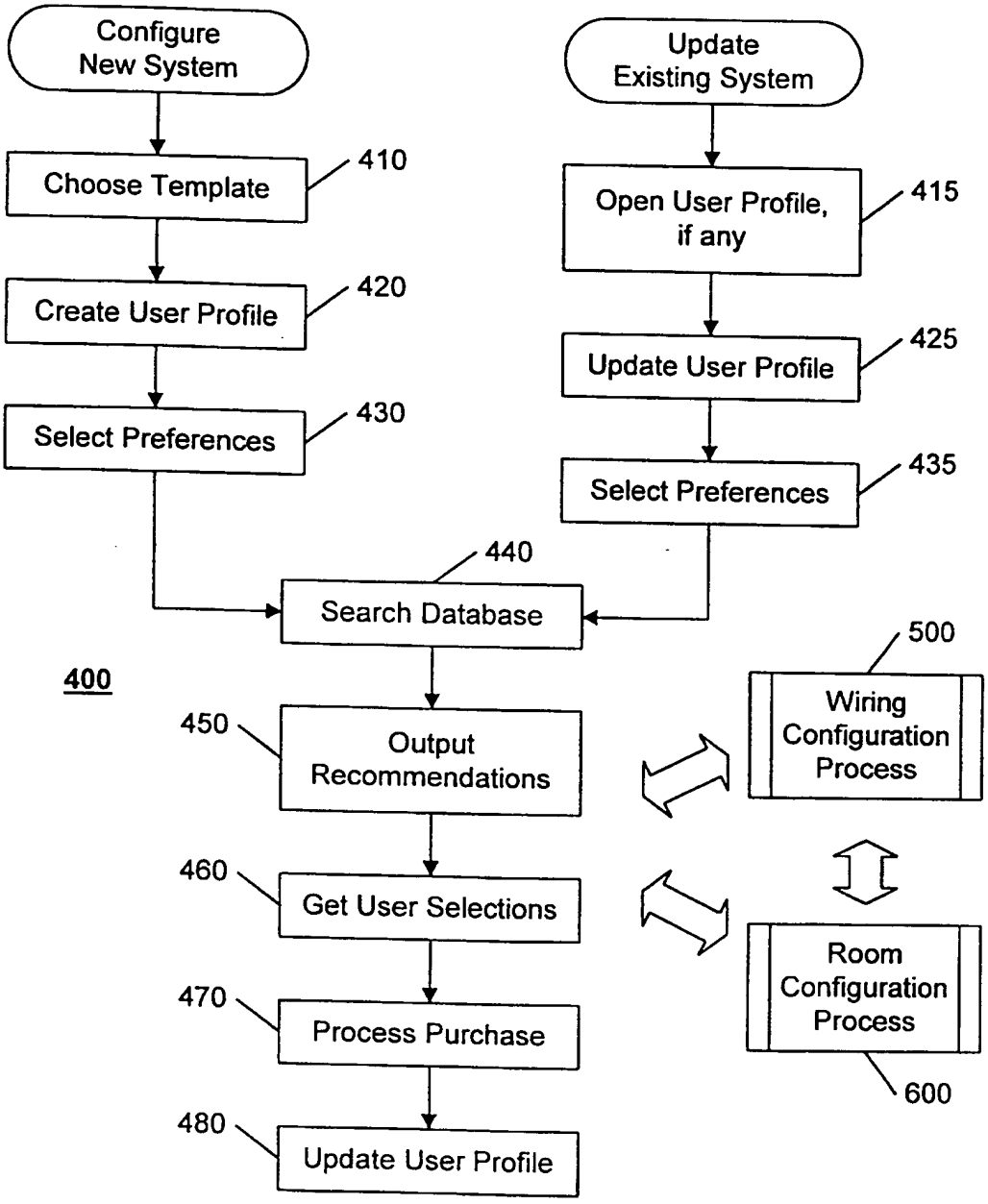
Configure New System
Update Existing System
Choose Template
410
Open User Profile, if any
415
Create User Profile
420
Update User Profile
425
Select Preferences
430
Select Preferences
435
440
Search Database
400
500
Wiring Configuration Process
450
Output Recommendations
460
Get User Selections
Room Configuration Process
470
Process Purchase
600
480
Update User Profile

FIG. 4

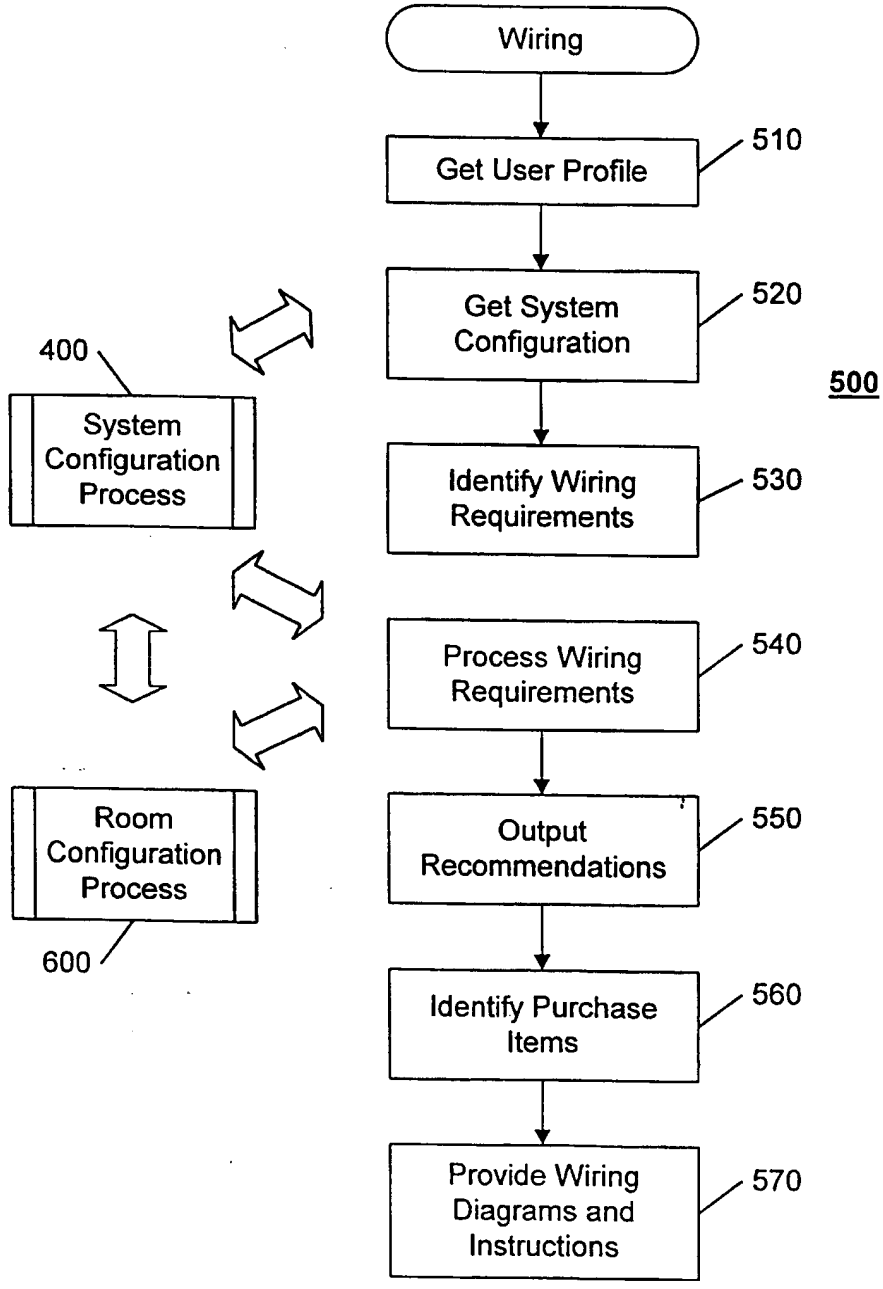
Wiring
Get User Profile
510
Get System Configuration
520
500
Identify Wiring Requirements
530
Process Wiring Requirements
540
Output Recommendations
550
Identify Purchase Items
560
Provide Wiring Diagrams and Instructions
570
400
System Configuration Process
Room Configuration Process
600

FIG. 5

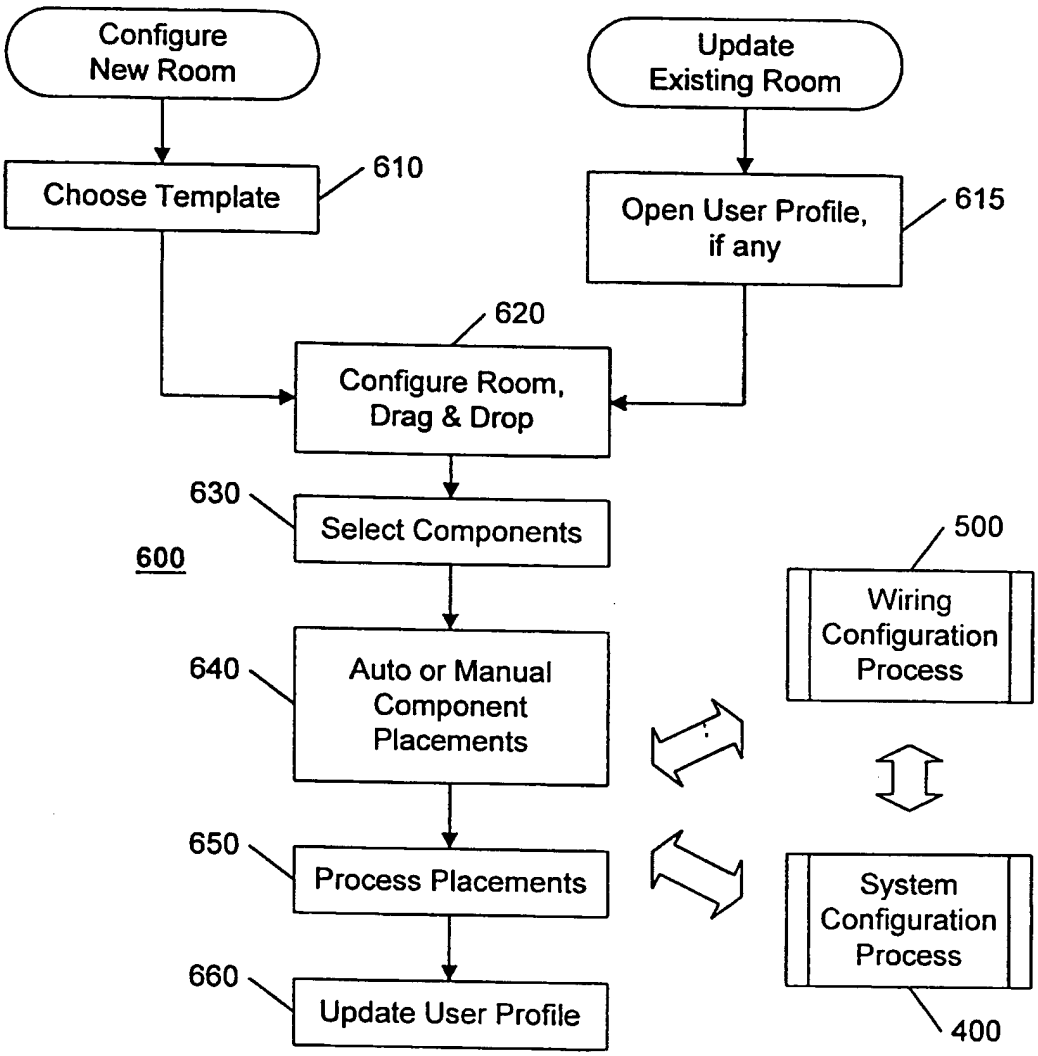
Configure New Room
Update Existing Room
Choose Template
610
Open User Profile, if any
615
620
Configure Room, Drag & Drop
630
Select Components
600
500
Wiring Configuration Process
640
Auto or Manual Component Placements
650
Process Placements
System Configuration Process
660
Update User Profile
400

FIG. 6

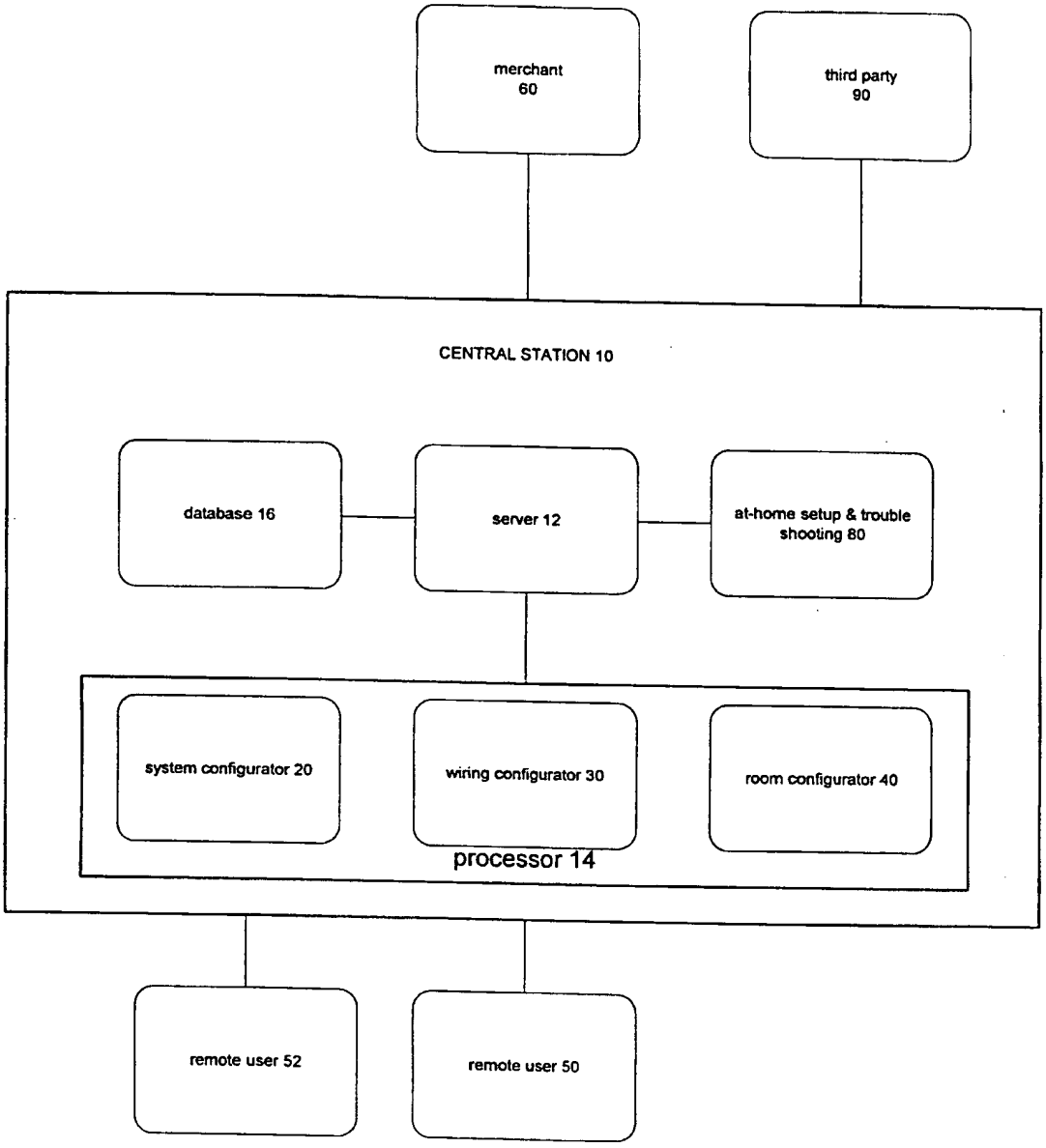
merchant
60
third party
90
CENTRAL STATION 10
database 16
server 12
at-home setup & trouble shooting 80
system configurator 20
wiring configurator 30
room configurator 40
processor 14
remote user 52
remote user 50
100

FIG. 8

917

06AU917

[redacted]

For: **lplank (006-1/F102)** on **itprt03**

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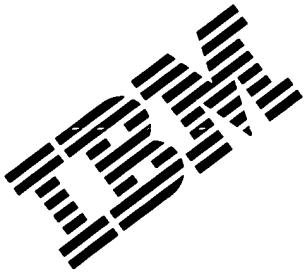

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(71) Applicant: **PROFICIENT SYSTEMS, INC.** [US/US]; 2859 Paces Ferry Road, Suite 820, Atlanta, GA 30339 (US).

(72) Inventors: **FREISHTAT, Gregg**; 5860 Winterthur Drive, Atlanta, GA 30328 (US). **HUFFORD, Steve**; 3158 Marne Drive, Atlanta, GA 30305 (US). **MCFALL, Dodge**; 1605 Exeter Court, Marietta, GA 30068 (US). **WILSON, Jackson**; 3445 Valley Road, Atlanta, GA 30305 (US). **HYMAN, Tonya**; 60 West Belle Isle Road, Atlanta, GA 30342 (US). **RIJSINGHANI, Vikas**; 315 Glen Lake Drive, Atlanta, GA 30327 (US). **KAIB, Paul**; 2384C Dunwoody Crossing, Dunwoody, GA 30338 (US).

(74) Agents: **TURTON, Michael** et al.; Kilpatrick Stockton LLP, Suite 2800, 1100 Peachtree Street, Atlanta, GA 30309 (US).

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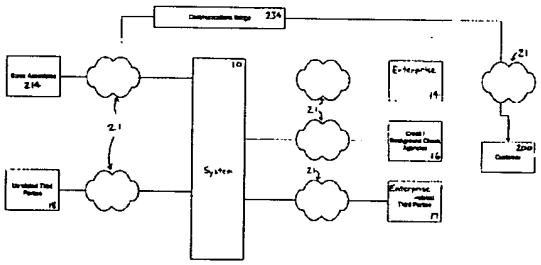
(54) Title: SYSTEMS AND METHODS TO FACILITATE SELLING OF PRODUCTS AND SERVICES



(57) Abstract: The system of the present invention provides systems and methods for selling goods and services on, over, through, and in conjunction with the Internet. The system receives session (clickstream) information on a customer's website session from the enterprise's website and may also receive customer information on the customer from the enterprise's CRM or eCRM system. The session information referred to comprises the goods or services the customer is searching and metadata about such search and the relevant products, such as the surfing pattern itself. The system determines from the received information, based on the interaction between matching rules created using the system by the enterprise and the system's matching engine, whether the customer is a candidate for assistance from a sales associate. The system creates and indexes information on available sales associates and their performance, selling capabilities and product expertise. The system further matches the customer with at least one sales associate, ideally the most appropriate sales associate, based on the customer, session, and sales profile associate information, and facilitates communication between the sales associate and the customer. Additionally, the system provides information on the customer, products or services the customer is interested in, and the collateral sales materials (both internal and external to the enterprise) and selling techniques to the sales associate based on the particular sales opportunity. The system facilitates communication between the sales associate and the customer on the basis of chat, voice over IP, email and the public switched telephone network, including the concept of bridging a chat session into a PSTN conference call during which call the sales associate and customer maintain a co-browsing session with regard to the opportunity over the Internet.

WO 02/44864 A2

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

SYSTEMS AND METHODS TO FACILITATE SELLING OF PRODUCTS AND SERVICES

Field Of The Invention

The present invention relates generally to electronic commerce, and more particularly to methods and systems to facilitate selling interactions that originate online.

Cross-Reference To Related Application

This application claims priority to U.S. provisional application Serial No. 60/244,039, filed October 26, 2000, which document is incorporated herein by this reference.

Background Of The Invention

Electronic commerce, or "e-commerce," as it is commonly referred to, involves the sales of goods or services over, through or in conjunction with the Internet. Currently, e-commerce largely concerns the sale of goods or services that are relatively simple in terms of the product variability and complexity. Most e-commerce today derives from one of just a few categories of goods that meet this test of simplicity: books, compact discs, flowers and travel (mainly just airline seats). E-commerce is restricted to these categories of goods today largely because the goods themselves are simple enough that they can be presented in an catalog format. The customer does not need to consult with an expert in these goods or services before purchasing them. Thus, almost all Internet e-commerce sites today are sterile, pure self-service environments.

The complexity and variability of goods and services that sell online is increasing as greater numbers of enterprises of those goods seek to leverage the distributional efficiencies of the Internet. The increase in the complexity and variability of goods and services requires an increase in the consultative nature of the sales experience for the customer.

For example, in the travel category, most online purchasing activity currently relates to airline seats. When purchasing airline seats a customer has essentially two variables to deal with: (i) flight schedule and (ii) price. Otherwise, one airline seat is generally the same as any other. However, as the enterprises seek to sell exotic, luxury travel packages, such as safaris to Africa or boat trips through the Amazonian Rainforest over the Internet, the variables and the complexity of the sales process increases dramatically. For such a sale, a customer will want to know where to stay, what kinds of food to eat (and what kinds not to eat), whether the territory is considered dangerous or the trip is considered rigorous, whether special inoculations are required, and other complex questions. These questions demonstrate the added variety and complexity of the inputs necessary for the customer to make an informed purchase decision for this kind of service and they fundamentally require human interaction with a knowledgeable sales agent or product specialist to be answered in a meaningful way. The same type of complexity is inherent in the purchase of a variety of other goods and services including banking services (mortgages, retail banking, wealth planning), insurance services, electronics, luxury retail goods (fine watches, jewelry) and automobiles. Sale of these products requires a "trusted relationship" between a customer and a live sales expert who can use proven internal and external

resources as collateral sales material to close the sale. Fundamentally, these products are sold, not just dropped in a shopping cart and purchased.

In the offline world today, purveyors of these complex goods and services strive to create comfortable retail environments in which knowledgeable personnel politely answer customers' questions about product and service features, capabilities, and alternatives, facilitate sales, and upsell related products and services, such as service warranties. For example, when shopping for a camera in an offline store, a sales associate will guide the customer toward the right camera, sell additional lenses, a case, batteries, a warranty, and perhaps some film before physically walking the customer to the cash register and closing the sale. E-commerce environments, by contrast, are almost completely self-service environments, notwithstanding the existence of chat platforms and other technologies that facilitate online interaction.

It is clear that there is a much higher level of interaction in the physical world. Customers have come to expect that there will be someone available in a physical location that can answer questions about products and direct them through the process. It is also frequently the case that a high-end shopper from a wealthy demographic is matched with a sales associate who, though otherwise skilled in the product to be sold, is mismatched with the demographic and psychographic characteristics of the buyer.

As enterprises attempt to increase the type and volume of goods and services bought through an online origination, the availability of knowledgeable expertise and assistance and relevant sales collateral materials must be addressed in order to persuade customers that they can obtain enough product-centric information to make

buying over, through or in conjunction with the online channel an easy, pleasant experience that is equal or superior to shopping through other channels. Moreover, the Internet fundamentally changes the way goods and services are bought by customers. In the offline world, customers go to a store to buy a product; online, customers seek a product first, and then identify a store from which it can be purchased.

While a number of companies have extended existing call center technology into Internet sales environments in order to enable live voice or chat sessions with browsing customers, the Internet retail experience is still largely sterile and unsatisfying. Rather, the current online interaction focuses on customer service rather than sales – a significant distinction as customer services personnel are not well-suited to closing sales.

"Customer relationship management" ("CRM" or, as adopted for the online world, "eCRM") solutions providers have existed for several years now. However, few if any of these solutions facilitate meaningful, direct human interaction through the online channel. In fact, many CRM solutions that have offered call center support for catalogs and have simply extended their product offering to include Frequently Asked Questions ("FAQ"), e-mail and chat – features that most of the eCRM companies have in common. Many eCRM enterprises have thus chosen to focus on facilitating "touchless" e-commerce transactions, i.e., transactions that do NOT require human intervention.

Online chat or instant messaging is the most personalized and sophisticated mode of customer/sales associate interaction. Using platforms developed by

companies like AOL, these programs facilitate real-time online chat between the two parties, occasionally allowing the sales representative to "push" web pages or content to the customer in order to guide the customer to products or information. Some eCRM companies take this one step further by offering voice over IP. With voice over IP, if the customer has the right equipment on her computer she can talk to a customer service representative via the Internet. Most of the programs require the customer to log in to the chat session, allowing the customer service representative to maintain a history of customer contact. Some of the programs also allow the sales associate to view the complete customer purchase and communication history. Again, however, these platforms are typically staffed by customer service representatives and not sales associates and do not involve any "matching" of the right agent with the customer based on the agent's profile and skills, the customer's demographic and psychographic characteristics and the nature of the browsing opportunity.

FAQ services use historical "common" inquiries to generate template responses to customer questions. Some products go a step further and use artificial intelligence to analyze customer inquiries and generate "smart" answers. E-mail products also use gateway screening or artificial intelligence to answer customer questions in a more efficient manner than having a customer service representative personally respond to each question. Some e-mail programs also add direct e-mailing capabilities that can target and customize e-mail campaigns according to historical customer data. Some eCRM providers have product configurator applications. With these applications a customer is provided with a variety of questions regarding the

features of the product they are interested in. Based on the answers to the questions the application will provide a suggestion as to the best configuration of the product for the customer. This solution is still a "touchless" experience from the standpoint of human interaction.

In general, CRM is reactionary – generally focused on post sale activity, such as, keeping existing customers, resolving problems, and managing customer relationships. CRM representatives are generalists, with no specific product or sales knowledge. By comparison, sales is proactive – focused on pre-sale activity, such as, obtaining customers, avoiding problems, creating customer relationships, and assisting customers in the purchase of goods or services. Sales associates are trained in the art of selling and posses specific and in-depth knowledge about goods and services.

A system does not exist that (i) matches browsing customers with experienced, knowledgeable sales personnel, (ii) provides relevant, opportunity-centric sales collateral information to the sales personnel and then (iii) facilitates the type of interaction between the customer and the sales person that is familiar in the offline world.

Summary of the Invention

The present invention addresses the current lack of online sales assistance by creating the infrastructure to establish a system that allows accredited, experienced and product-knowledgeable sales personnel to sell goods and services (collectively, "products"), particularly complex, highly-consultative products, more effectively

over, through, or in conjunction with online channels. The terms "over, through or in conjunction with the Internet," used singly or in combination, contemplate sales that occur through the present invention that (i) are effected solely through online interaction, as well as sales that occur through the present invention that merely originate online or (ii) are captured online, such as through the present invention, but are consummated either through a telephone connection (as contemplated herein) or in an offline (face-to-face) setting. With regard to the scenarios contemplated in item (ii) above, the present invention represents a bridge that connects online and offline selling.

The present invention fundamentally changes the Internet purchasing experience from one akin to browsing in a catalog to one similar to purchasing goods or services in the offline world with real time access to people who are knowledgeable in the goods or services being purchased and skilled in the art of closing a sale. Moreover, the present invention provides the sales personnel with product information from the enterprise and third parties. The present invention further monitors each sale and accumulates a record of effective sales techniques and information. The present invention further provides real-time communication functionality, via Internet chat, voice over IP, Internet streaming and the public switched telephone network ("PSTN"), that facilitates live and effective communication between the sales associate ("SA") and the customer. The present invention may be implemented by an enterprise either on a standalone basis or on a basis that is integrated (heavily or lightly) with other applications that operate in reference to an enterprise's Internet site (such as a one-to-one marketing application),

or an enterprise's existing CRM, inventory, accounting or enterprise resource planning ("ERP") systems.

The present invention allows enterprises (whether principally online or offline in nature and heritage) to bring their existing sales force into contact with online browsers to further the enterprise's ultimate objective – generating more revenue, irrespective of where a given 'lead' originates. The present invention further allows a new paradigm to emerge by permitting sales associates to leverage their expertise in selling certain specific products for multiple providers of those products (e.g., for the sales associate to offer his expertise on a product-centric, rather than an enterprise-centric basis). A veritable army of available, highly qualified, independent sales associates (functioning as independent contractors with regard to the enterprise that sells the relevant product) may be unleashed by the present invention on an infinite number of live sales opportunities. Alternatively, the instant invention could be deployed within the paradigm commonly existing today – within a 'captive' sales force of existing employees of the enterprise, again allowing those employees to leverage their sales expertise on a product-centric basis.

The present invention is for use in connection with the Internet environment, whether wired or wireless, or can be used with other environments now and in the future. The present invention has application in offline environments as well. For example, the database of experienced mortgage agents created by the invention could be accessed by other mortgage agents within the enterprise (or by the enterprise's management or Human Relations department) to gather information as to who would be the best agent for the first agent to collaborate with on a given offline opportunity.

Similarly, agents could use the database of sales collateral materials and their proven effectiveness in given situations to address a customer's objection expressed in an offline, face to face meeting. Thus, there are both offline and online applications and utilities of the present invention. Within this application, the word website shall generically mean any electronic interface to the enterprise and includes, but is not limited to, a website on the World Wide Web accessed via a computer or wireless device with a browser functionality and also includes any other electronic interface where a enterprise's goods or services can be purchased, including an Internet-enabled telephone or voice response system.

The system of the present invention provides SAs with interactive tools that allow them to emulate, as closely as possible, the interaction between customers and sales personnel that are commonly accepted in the offline world. The closer the online experience reflects its offline counterpart, the quicker consumers will adopt the online channel as an adjunct to existing channels. The system of the present invention performs several major tasks. First, the system provides a registration system for all SAs that enables the system to keep track of all SAs and allows for a credit and background check on the SA, if desired. The system also provides online training, education, and accreditation procedures that enable SAs to establish their competency to sell specific types and categories of products or services and to sell online in general (e.g., it measures the SAs online proficiencies, ability to type, ability to navigate the Web, etc.). The system determines whether a customer browsing on a website needs sales assistance based upon available clickstream and/or login data (the login data, for example, might identify the customer as a high-net worth individual

who either already is or is eligible to become a 'private banking' client). The system also allows the customer either to ask for sales assistance or to be proactively approached with sales assistance by an SA who is accredited by the system to sell that product and who has been made aware of the opportunity by the opportunity-matching parameters of the system.

As noted above, the system includes a matching engine. The matching engine dynamically matches SAs with online customers based on a variety of enterprise and/or system-driven criteria in order to ensure that the most qualified SA is matched with each customer (based on known data about the browsing session (the nature of the opportunity), the customer and the agent and his or her rankings, permissions and ratings as defined by the registration module). The relevant matching criteria are varied and include clickstream data, demographic characteristics of the browser passed through login information or cookies, etc. The system permits the enterprise that is operating it to establish and weight these opportunity-matching parameters to achieve the best matches possible based on past experience with the system's or the enterprise's sales and marketing objectives. The matching engine additionally dynamically changes the matching criteria based on various factors, such as sales successes or changing market conditions. The matching engine ranks the SAs based on the matching criteria used and generates a list of SAs in rank order. The rules underlying the matching engine can be flexibly changed by the enterprise's staff to set different 'triggers' for SA/customer interaction in accordance with changes in the enterprise's sales and marketing strategy. In the offline world, a customer's encounter in a given shopping environment with the sales personnel available at that

location is random, at best. For example, if an affluent consumer from the 30328 area code in Atlanta, Georgia enters a local bank branch seeking a complicated mortgage re-finance product, he may or may not encounter an appropriate expert available in the store at that time. In addition, he may or may not encounter an SA who knows how to address the needs and buying habits of affluent consumers. By comparison, in the financial institution's virtual storefront, the bank can effectively make its entire sales force available to handle all of the traffic encountered at the e-commerce site, but parse that traffic out to the most suitable SAs depending upon an array of variables: the type of product, the psychographic and demographic characteristics of both the customer and the SA, the sales skills of the SA in that product category and the SA's demonstrated ability to close a sale online. As a result, the enterprise is empowered to create far better "matches" between customers and its sales personnel in the online environment than is possible in the real world.

The mismatches of SA to opportunity, either in terms of the product expertise of the sales associate, or of the demographic and/or psychographic characteristics of the consumer and the sales associate, are addressed by the present invention. The present invention addresses this by matching product-specific SAs with browsing consumers based on (i) available clickstream data that passes information to the system about the nature of the sales opportunity itself, (ii) demographic information about the customer, (iii) information about the proficiencies of the SAs in the enterprise's sales force (e.g., which ones sell well into these types of product opportunities to these types of customers) and (iv) the nature of the 'triggers,' or matching rules established by the enterprise.

After the matching engine performs the matching function, the SA can be linked to the customer in a variety of ways. First, the system can seek out the best qualified SA for a given opportunity; if that SA is not available, the matching engine will go to the next best qualified SA and so on until the customer is being helped. The matching engine can notify the SA of the opportunity even when he or she is not logged on, such as through a page or a call to the associate's telephone. Second, the matching engine can notify the top several SAs and let the SAs "race" to the customer.

Alternatively, the matching engine can simply provide the SAs with their matching score (or simply notify them, without necessarily providing their score, that they are eligible for a given engagement), and let the SAs decide whether to contact the customer (or let the SAs 'race' to the customer). This information is provided to the SA on a series of SA-facing pages (effectively, an SA desktop) that the SA can view to see, on a dynamic, real-time basis, the number and kind of browsing consumers that the SA is qualified under the system to approach. So, the SA can identify opportunities simply by being logged on to the system or the SA, with the enterprise's permission, can be contacted by the system when an appropriate opportunity for that agent is identified by the system.

In essence, the matching engine allows for "can" and "must" approaches, as established through the system by the enterprise (e.g., the vendor of a given product) that controls its operation. A "can" situation is defined by the system as one in which an agent may (permissively) approach a browsing consumer based on elements of the matching engine. A "must" situation is defined as one that the enterprise has defined

as requiring an SA to approach (mandatory). The system allows both "can" and "must" scenarios to be executed, and for the parameters that define these scenarios to be established, weighted, ranked and then re-ranked based on actual performance.

The system can operate independently to the enterprise's online channel or be connected to the enterprise's CRM, eCRM or other marketing systems to obtain information about known customers (the system of course allows SAs to approach both customers who are known to the enterprise (such as through login information or a cookie) and customers who are, as far as the enterprise knows at the time of engagement, simply anonymous browsers). The system can also be connected to the enterprise's ERP system to obtain product and catalog data, such as alternative product or service choices, and any related products or services, as well as excess inventory, reduced prices, and any other packages controlled by the enterprise. This information is provided to the SA on the SA facing web pages.

An external data gathering engine allows the SAs to collect and repurpose, at the point of opportunity, collateral sales material (either from the enterprise or from third-party sources available on the Internet or from other sources) that may be helpful in the sales process. For example, an SA could perhaps locate an article on the Web from The Wall Street Journal that explains why now is the time to refinance; the SA might share that article with a browsing customer to convince the customer not to postpone the decision. A wide variety of data, both internal and external to the client enterprise, could be gathered that might prove helpful to closing the sale, including existing enterprise-provided sales and marketing materials, magazine articles, financial calculators, other competitors' web sites or competitive

comparisons. The data gathering engine collects this information (as established in a baseline (i.e., initial) configuration), and as it has subsequently been used collectively throughout the enterprise's sales force), and then can recommend specific pieces of collateral information for use in conjunction with any particular opportunity to the SA via the SA facing web pages.

Additionally, the system includes a best practices engine that monitors the entire sales engagement in order to develop a database of what techniques and collateral sales material were successful and what were not successful in particular sales transactions. The best practices engine continually rates and re-ranks both SAs (in terms of the opportunities available to them) and collateral sales materials (again, on an opportunity-centric basis) on the basis of all activity captured by the system up to that moment. Accordingly, the system dynamically provides "up-to-the-minute" rankings and the most effective matches of both SAs and collateral sales material to any given opportunity. During a sales transaction, the SA is provided with these proven "best practices" via the SA facing web pages to assist the SA in closing the sale.

The system does not have to result in the "closing" of transactions purely through online interaction in order to be effective. For example, in a situation as complex as a mortgage transaction, it may be sufficient for the engagement to originate online at a browsing session, for the SA to achieve an introduction through a proactive chat session, for the session to bridge from chat to a PSTN conference call, for the agent to make an appointment with the consumer at a retail location and for the sale ultimately to be consummated face-to-face in a bank branch. Accordingly,

the utility of the application is not limited to the online channel. Hence, the present invention also contemplates functionality that will allow a sales associate to first communicate with a consumer in chat, but also to bridge from the chat session to a telephonic conference call through the PSTN or via VOIP technology.

The system also continually monitors the sales process and provides this information as well as reports on consumers, SAs, and sales to the enterprise through enterprise facing web pages. This information can also be sent to offline databases maintained by the enterprise for corporate management purposes (for example, to an ERP or human resources system). The system can provide integrated SA compensation accounting, if necessary. Further, the system collects a robust database of customer purchasing patterns that provides valuable customer behavior data to the SAs and enterprises. This data drives future matchmaking (both in terms of agents and collateral sales data that are brought to bear on any given opportunity scenario), and also facilitates and informs future direct marketing and e-commerce initiatives. Therefore, the present invention will substantially enhance customers' online e-commerce experiences and materially increase the volume of sales made in, over, through, or in conjunction with online environments.

Virtually any enterprise that sells complex or consultative products or services and that has a website can benefit from the present invention. Many websites, such as auction sites and business to business exchange platforms, financial sites, travel sites, catering service sites, wholesale and retail sites, can benefit greatly from the present invention. Also, as noted above, there are benefits to the enterprise, in the form of

additional data for managing the enterprise, that are effectively independent of the existence of the web site.

The online channel today is limited to merchandise that has certain commodity characteristics that are not so complex as to require sales people to close the sale. The present invention, by contrast, enhances the effectiveness of the online sales process particularly with respect to more complex, less commoditized offerings such as electronic equipment, automobiles, financial products (mortgages, car leases and other loans, insurance, wealth planning, mutual funds and securities), luxury products (such as fine food and wine, jewelry, cosmetics) and other merchandise and services that typically require a high-level of sales assistance. Thus, the present invention allows enterprises to substantially expand the categories of merchandise that can be effectively sold through or in conjunction with an online channel. Moreover, by allowing SAs to proactively approach browsers online, the present invention effectively allows enterprises to man their online presence with real people, who can then use the communication functionality offered through the present invention to address consumers' needs in real time, either for the purpose of closing the deal online or generating a 'hot lead' that can then be passed into the existing offline channel. Thus, the present invention effectively marries or bridges the online and offline selling processes, and allows the enterprise's existing "offline" human selling resources to be leveraged against online opportunities.

Online customer service solutions are expected to grow from a $162 million market in 1999 to $1.95 billion in 2004. Most such solutions are focused on the post-sale, eCRM space. The present invention, by contrast, focuses on sales as a discipline

that is distinct from customer service. Moreover, the present invention addresses the online sales problem by matching real-time sales opportunities with experienced, accredited, knowledgeable sales personnel – in effect placing a human face into the online channel – and arming those personnel with opportunity-centric collateral sales material.

A major difference between current eCRM solutions and the present invention is that the present invention goes beyond existing CRM tactics by matching the customer with the best SAs for the customer's needs on an opportunity-centric and customer-centric basis, bringing the most appropriate SA to the opportunity, and then providing that SA with the necessary tools to complete the sale (both data assets and communication functionalities). This should be compared to current eCRM solutions that merely provide access to a call center representative who is inadequately trained to answer questions about products or suggest reasonable alternatives to the customer. By establishing personalized, human interaction as part of the sales process rather than waiting for a customer to ask for assistance, the present invention dramatically improves the e-commerce experience. Additionally, the present invention allows for an SA to have a relationship with the customer (rather than the "database" building a relationship with the customer), helping to facilitate a smoother transition (from a customer experience perspective) from a bricks and mortar purchasing experience. Further, the present invention provides an intelligent, personalized solution – not an artificially intelligent, mechanized solution. Finally, the present invention contemplates a series of real-time communication functionalities – chat, VOIP,

streaming media and, importantly, the PSTN – that bridge the online and offline channels and make the online experience far more robust from a selling perspective.

Perhaps the most compelling reason for increasing customer satisfaction by using SAs is to increase customer loyalty. Repeat customers visit a site twice as often and spend one-third more than the casual visitor. SAs can be expected to establish ongoing relationships with customers, increase spending per customer (the average sale amount today is $112 per transaction), as well as growing the number of repeat customers.

Brief Description of the Drawings

Figure 1 is a functional diagram illustrating the external connectivity of a preferred embodiment of a system for linking sales associates with customers according to the present invention.

Figure 2 is a functional diagram schematically illustrating the architecture of the system and the external connectivity of the system with an enterprise.

Figure 3 is a flow diagram illustrating the registration and authentication process according to one embodiment of the present invention.

Figure 4 is a flow diagram illustrating the training and accreditation process according to one embodiment of the present invention.

Figure 5 is a flow diagram illustrating the matching process according to one embodiment of the present invention.

Figure 6 is a screen shot of the Sales Office function of an SA user interface.

Figure 7 is a screen shot of a Sales Floor function of the SA user interface.

Figure 8 is a further screen shot of the Sales Floor function of the SA user interface.

Figure 9 is a screen shot of a Certification function of the SA user interface.

Figure 10 is a flow diagram of the sales process according to an embodiment of the present invention.

Detailed Description

Figure 1 shows the connectivity of an embodiment of the system 10 of the present invention to other entities. System 10 can interface with other external entities, sales associates ("SAs") 214, enterprises 14, credit/background check agencies 16, enterprise related third parties 17, and unrelated third parties 18. System 10 is indirectly connected to customers 200 through the enterprise 14. System 10 matches a customer with the best qualified SA or SAs based on predetermined criteria and provides the SAs with sales tools and information to enable SAs via SA-facing web pages to ably assist customers to make purchases at the enterprise's website. Further communication between the SAs and customers is facilitated by the communication bridge 234. System 10 further provides enterprise-facing web pages to enable the enterprise to monitor the sales process.

An enterprise, as previously described, can be any organization or institution that engages in the selling of products, goods, or services of a complex nature. Retailers, insurance companies, real estate companies, auctions, professional services firms, travel agencies, financial institutions, stock brokers, and others similarly situated fit within the broad and limitless profile of organizations who utilize the systems and processes according to the present invention.

SAs can work for the enterprise, Captive SAs (CSA), or can be Independent SAs (ISA), who represent the same product or set of products as independent contractors for a number of different enterprises.

Examples of some enterprise related third parties 17 are the enterprise's CRM or eCRM system, the enterprise's ERP system, the enterprise's data mining/analytics/marketing platforms, the enterprise's human resources system, and the enterprise's inventory, accounting and other back office systems. Unrelated third parties 18 are parties that have relevant information to assist in the selling process, such as Consumer Reports, the Wall Street Journal and even conceivably a competitor's website (assuming a comparison of the primary vendor's offering with the competitor's offering will reflect favorably on the primary vendor's offering). Credit/background reporting services 16 are any service that provides information on a person's credit history, criminal record, and other personal background information. These services can be accessed to verify the identity of an SA or assist an enterprise in accrediting an SA (the latter function is particularly important insofar as the enterprise is engaging ISAs, who are unlikely to be known to the enterprise, as independent contractors). In CSA scenarios, this information will most likely be passed from the enterprise's ERP and/or HR system directly to the system.

System 10 may take the form of a network of desired systems, computers, or other functionality, located in one or more geographical locations, running any desired operating systems and applications. In one embodiment, system 10 is J2EE compliant and is implemented on a Sun Microsystems, JAVA-based architecture and in another embodiment system 10 is implemented in a Linux-based system. System 10 may be connected to the sales associates 12, enterprises 14, credit/background check services 16, and enterprise related third parties 17 and any other desired entity via public or private packet switched or other data networks including the Internet,

circuit switched networks, such as the PSTN, wireless network, or any other desired communications infrastructure 21. Server is used herein to refer to an application on an individual server or a portion of a server shared with other applications.

Fig. 2 illustrates schematically, in more detail, the connectivity and architecture of the system 10 when connected to a particular enterprise server 14. A customer 200 accesses a website at the enterprise server 14 via a web browser 202, such as Internet Explorer from Microsoft Corporation. As the customer is browsing the enterprise's website, the enterprise monitors the activities or session information of the customer 200. A session information message or messages, typically, but not necessarily, passed in XML format, are sent from the enterprise server 14 to an opportunity qualifier 204 in an engagement engine 205. Session information includes a variety of clickstream-derived data, such as, for example, whether the customer has requested assistance from an SA, whether the customer has indicated that it does not want assistance from an SA, the page on a website that the customer is viewing, and/or the goods or services the customer is examining on that page, demographic or other information about the customer extracted from the web page the customer is examining (such as the value of a mortgage that the customer is seeking, extracted from a mortgage calculator the customer is filling out), the contents of the customer's shopping cart, the time that the customer has looked at a given product on a given Web page, the customer's surfing pattern, the identity of the customer, and the customer's past purchasing history with this enterprise. The opportunity qualifier 204 may also receive customer information about the customer 200 from a enterprise's customer database 206 via a content engine 208. The content engine 208 accesses the

customer database through, for example, the enterprise's eCRM system. The customer information may include some or all of the following information: the customer's name, address, past purchase information, past SAs used, items of interest, past site activity, and recommended purchases based on past purchasing history, if such information is available about the customer. Based on the session information and/or the customer information received, the opportunity qualifier 204 determines whether the customer is required to receive assistance from an SA (a "must" scenario) or is a potential target for permissive assistance from an SA (a "can" scenario).

If the opportunity qualifier 204 determines that the customer wants or could use help from an SA, the opportunity qualifier 204 sends an XML opportunity message to an Expert Sales Availability Choice Technology ("ExSACT") matching engine 212. The opportunity information sent to the ExSACT matching engine 212 from the opportunity qualifier 204 includes session information and customer information.

An SA connects to the system 10 either through the enterprise's internal network ("intranet") and/or through a web browser 216, such as Internet Explorer from Microsoft Corp. Before beginning to assist customers with specific goods or services, an SA must register with the system and must be accredited to sell the specific goods or services. An SA registers, trains and obtains certification via a skills engine 218. The Skills engine 218 may also receive performance data regarding SAs from the enterprise's existing ERP/HR systems 217. Performance data includes such things as the SA's performance ratings within the enterprise (based on an unlimited variety of performance criteria, including revenues, the SA's return or

rescission rates, etc.), and any accreditations or licenses to sell certain products. This information on individual SAs is stored in the SA data base 219. The skills engine 218 also continually gathers information concerning sales transactions and the performance of the SAs within specific transactional contexts, and generates reports on the transactions as well as performance reports on the SAs. Such sales transaction information includes, for example, whether the sales transaction resulted in a sale, the amount of the sale, and the products sold or attempted to be sold. The skills engine 218 can include accounting applications to monitor the sales made over the system and manage the payment of SAs and invoicing of the enterprises. The system also includes applications that monitor and generate reports on the enterprises and customers and can be provided to the enterprise offline or online via enterprise facing web pages. If the system is used with independent SAs, the system connects with credit/background reporting services so that background and credit reports of the SA can be obtained. This information is likely not necessary with a captive SA.

Once an SA is online, registered, and certified, the SA can access the desktop 220. When an SA is logged into the desktop 220, the SA's profile information is sent to the ExSACT matching engine 212. An SA's profile information includes, for example, the SA's name, products or services accredited to sell by the system, and performance data with respect to the SA's performance using the system. The SA's profile information is continually updated by the system. Based on the profile information of the currently available SAs, customer information (if available), and session information, the matching engine creates an ordered list of available SAs best suited to assist the customer. The matching is done in a variety of enterprise- and

system-specified ways, as explained in more detail below. The list of SAs is sent from the matching engine to the queue control 210 and the queue control ensures that an SA is paired up with the customer and that the SA responds to the opportunity.

The desktop 220 presents the SA with a communication user interface in the form of web pages through which the SA can monitor customers on the enterprise's website, interact with and assist the customers, interact with other SAs, and access various goods, services, best practices, and external information. The SA can take over the customer's navigation through the enterprise's website or can take the customer to a third party website. The collaboration feature can be provided by collaborative browsing tools from companies such as TogetherWeb, HipBone, and Cisco.

The desktop 220 receives product and catalog information from a product data base 224 via the content engine 208. The content engine 208 accesses the product data base 224 via, for example, the enterprise's ERP system. The types of product information include, for example, product specifications, collateral products (e.g., like products or product substitutes at varying price points), warranty information, product competitive data, comparative product information from other competitive enterprises and upsell and cross-sell information. The types of catalog information include, for example, inventory information (availability or backlog), pricing information, promotional or sale information, terms of sale, and commission information.

The desktop 220 receives external information from a caching database 225 via the content engine 208 and from a best practices database via a practices engine 230. The practices engine 230 collects and organizes in the caching database 225 and

the best practices database 232 external materials such as product slicks, magazine articles, competitor comparisons, third-party financial calculators and comparison engines – essentially, any kind of information whether provided from the enterprise, from third parties and made available digitally (including information available on the Web) or from SAs in past selling situations (such as a good 'pitch' to use in a given sales scenario).

Product, catalog, and external information is gathered electronically, either passed from the product database 224 in the case of internal information, or, in the case of external information, generated from a baseline of external sources approved and established by the enterprise and captured through usage of the system over time. This information is then presented to the SA by the desktop 220. Product, catalog, and external information can be collectively referred to as sales information.

The desktop 220 receives best practices information from the best practices data base 232 via the practices engine 230. The practices engine 230 monitors all communication, data, external information, and resources (collectively "assets") used by an SA during a sales encounter and for a particular product or service. All of this information is then cataloged by enterprise, vertical and/or product as well as scored based upon the outcome of each related sales interaction to formulate a set of best practices. The best practices information is then stored in the best practices data base 232. The practices engine 230 indexes all aspects of the sales transaction (e.g., text transcripts of online chat sessions, audio transcripts of voice over IP sessions and/or telephone sessions, browser driving, etc.) in a manner that allows the practices engine to point-deploy dynamic best practice detail against the specific parameters of each

sales engagement. During a sale, an SA has access to these stored best practices and external information through the desktop 220 to assist closing the sale, as discussed below with reference to Figs. 7 and 8. The practices engine builds a correlation between the assets used, the use of an asset in a given opportunity, and how many times the asset was used successfully. This information can also be provided to enterprises offline or via enterprise facing web pages on the desktop 220, as it provides them with valuable customer behavior data.

Further communication between SAs and customers is facilitated by communication bridge 234. Communication bridge 234 facilitates methods of communication such as by telephone, instant messaging, web collaboration, web conferencing, e-mail, and voice over IP. The telephony side of the communication bridge 234 is known in the art and made by such companies as J2 Global Communications and Z-Tel Communications and the instant messaging and web collaboration side of the communications bridge is known in the art and made by such companies as Cisco, TogetherWeb, and HipBone. The communication bridge 234 can be internal or external to the system 10. Through this communication bridge, a customer/SA sales engagement commenced in chat online can be bridged through such a third-party to a PSTN-based conference call. This bridge is established either by the SA providing the customer with a toll free number to call or by the customer providing the SA with the customer's telephone number so that the SA call establish a telephone call with the customer via the communications bridge 234. In that conference call, if the SA has access to both a phone line and the Internet, the SA and customer can communicate via voice, while still maintaining a co-browsing session

on the Internet, i.e., the SA can talk to the customer while navigating the customer through the Internet.

Fig. 3 provides a flow diagram of the registration and authentication process according to one embodiment of the present invention. At 70, the Skills engine 218 receives a registration request. At 72, the Skills engine 218 unit determines if the requester is a registered SA by the SA entering a preselected username and password or other identification verification mechanism. If the SA is registered with the system, the Skills engine 218 logs the SA in and updates its records of online sales agents, as shown at 74. If the SA is not registered, the Skills engine 218 requests sales associate information from the SA, as shown at 76. The requested sales associate information may include personal (including a picture), historical, and other core data, such as, the name, address, and phone number of the sales associate, the job title and status of the sales associate, how many years the sales associate has been in this job or related jobs, the products the sales associate is interested in selling or is accredited to sell (this could be in ranked order), and the sales associate's preferred schedule. The skills engine may also request and receive some enterprise sales associate information on the sales associate. This enterprise sales associate information includes, for example, the SA's employment history, performance data on the SA (revenues, rescission rates, etc.), and the products the SA is accredited or licensed to sell. Sales associate information and enterprise sales associate information is collectively combined with any other SA performance data to create an SA profile on each sales associate. If this is a captive sales agent (CSA), the CSA may be required to include security information to establish that she can sell for the particular

enterprise. Alternatively, a CSA for a particular enterprise can register via a enterprise-specific URL to determine the CSA relationship.

At 78, the sales associate information is received from the SA. For fraud protection, the Skills engine 218 may cause a request to be sent to a credit/background check agency as shown at 80. This request may be sent directly from the system to the agency online or may be done offline. As a result, the system will be able to authoritatively identify SAs and prevent expelled SAs from gaining re-admittance under an assumed name. At 82, the Skills engine 218 receives the credit and background check data from the agencies. Again this can be done online or can be done offline. The Skills engine can also receive enterprise SA information, such as, for example, product accreditation information, schedule information, and other relevant information and performance data on the sales associate from the enterprise. The Skills engine 218 analyses any credit and background check data, any enterprise sales associate information, and sales associate information at 84 to determine if the SA is an acceptable candidate. If not, at 86, the SA is sent a rejection. If the SA is acceptable, the SA is sent a notification of her acceptance, given further instructions about registering and about the system. The notices can be sent either online or can be sent offline. The SA then may provide the system with her schedule and contact preferences, for example, (i) only when online and "available," (ii) off-line notification preferences, and (iii) off-line notification preferences based on SA-established schedule. At 89, the SA may be required to proceed to the training and accreditation process prior to completing the registration process based rules defined by the system or enterprise.

Fig. 4 illustrates a flow diagram of the training and accreditation process according to one embodiment of the invention. At 90, the Skills engine 218 receives a training or accreditation request from an SA. SAs may be accredited in terms of a merchandise category or a specific product or service. Accreditation standards can be created by the enterprise or the manufacturer, but in any event are published by the system. In response, at 92 the Skills engine 218 causes the appropriate materials to be provided to the SA. The materials can be provided to the SA online or can be sent to the SA offline. It is not necessarily objectionable that SAs could "cheat" the testing process by, for example, taking the test on an "open book" basis since they can also "cheat" in the same manner during the online sales experience. The materials could be established by the enterprises or by the manufacturers of certain products. The training materials contain the best practices information captured by the best practices engine 230 and enterprise supplied materials from the product data server 222. At 94, the Skills engine 218 receives and analyzes the results of the SA's training or accreditation and then at 95 the Skills engine 218 evaluates the observed performance metrics. At 96, the Skills engine 218 determines whether to accredit the SA. Then at 98, the Skills engine updates the SA records to indicate any new accreditation levels. Upon accreditation, the SA receives a "license" from the system or the enterprise to sell a specific good or service or category of goods or services. Licenses could also be granted on the basis of other categories as well, such as by geography, by demographic of the customer (reflected perhaps by customer login information or zip code information) or by any combination of the foregoing (e.g., by product and by demographic).

The testing and accreditation process can be performed online, manually, or a combination of both. The testing and accreditation process gives the system the ability to train and accredit SAs in order to effectively grant licenses to sell specific categories of products, goods, or services. Each enterprise can impose the training or certification level it desires before an SA will be permitted to sell at the enterprise's website.

Turning now to Fig. 5, the matching functionality of the ExSACT matching engine 212 assures that the most qualified SA or SAs are matched to each browsing opportunity that meets "can" or "must" scenarios as defined by the matching engine. The following description of the matching functionality is provided in terms of a captive SA and enterprise or enterprise specific matching, but it is equally applicable to an independent SA selling the same product or set of products as an independent contractor on behalf of a variety of different enterprises.

At 500, the opportunity qualifier 204 identifies a browsing session that represents a sales opportunity (based on session information and, if available, customer information). The opportunity context server 204 sends the matching engine a request for SA assistance based on the nature of those parameters. At 502, the matching engine determines the applicable rule set to apply to the matching. The rule set is determined by the product or service the customer is interested in or other "triggers" established by the enterprise (for example, the enterprise could instruct the system to find a qualified sales associate whenever a mortgage calculator involving an original principal balance of $300,000 is engaged). The applicable rule set is determined from page-to-product mapping 504, enterprise specific product hierarchy

506, and matching rules 505. Page-to-product mapping 504 decodes the URL information from the session attributes to determine what product the customer is looking at. The page-to-product mapping 504 could be part of the opportunity qualifier 204 or could be separate. The enterprise-specific product hierarchy is then used to determine if the product the customer is interested in has a corresponding rule set. If the specific product does not have a rule set, then the lowest applicable rule set is determined from the hierarchy. The appropriate rule set is then selected from the matching rules 505.

Once the appropriate rule set 503 is determined, at 508 the matching engine evaluates all SAs against the rules of the chosen rule set. First, at 509, an unordered list of qualified SAs is produced. The matching is dynamically performed by weighing customer information, session information, and SA profile information according to the rule set, and each qualified SA is given a matching score. The SA profiles are continually updated by the system to provide the most current information for the ExACT matching engine. The matching score is based on the relative ranking of each SA within the bounds of a particular rule multiplied by the relative importance of that rule among all the rules for a particular rule set. At 510, the matching engine ranks the SAs based on the resulting matching scores. A list is generated of qualified SAs in rank order at 512. The list is then sent to the queue control at 513 and the queue control 513 ensures that a SA from the list is paired up with the customer.

Depending on the enterprise's preference, the matching engine matches the customer with an available SA with the highest matching score and alerts the SA that

she must contact the customer, alerts qualified SAs at the top of the generated list that a customer needs assistance, or simply provides the SAs with their matching score and lets the SAs decide whether to contact the customer. With the second option, the SAs then "race" to the customer and the first SA to respond assists the customer. The SAs, in all scenarios, are notified through the desktop communication user interface, instant messaging, e-mail, telephone, wireless device, and/or any other applicable means and may be provided with their matching score. If the pool of available SAs is low, the matching application can cause SAs to be contacted via instant messaging, e-mail, telephone, wireless device, and/or any other applicable means to get online. Again, the SAs are contacted through a variety of means.

In one embodiment, the desktop 220 provides a simple user interface, for example, enterprise-facing web pages, to the ExSACT matching engine 212 for the enterprise to change the matching rules, introduce new rules, or reweigh existing rules for the matching engine. The matching engine also dynamically changes the matching rules based on various factors, such as sales successes or changing market conditions. Through this dynamic ranking feature, the matching engine produces "up-to-the-minute" opportunity matching based on criteria established by the enterprise and the success of the SA base in using the system.

Fig. 6 illustrates a screen shot of the Sales Office section of the SA user interface. The Browsing Customers window 600 displays customers browsing for products that the SA is accredited to sell and that the matching application has matched the SA with. The SA can set the Browsing Customers window to display all customers looking at products, which the SA is accredited to sell, or just customers

looking at specific products the SA is accredited to sell. SAs accredited to sell different products would see different views of the aggregate browsing activity at the enterprise's website. The Browsing Customers window 600 specifically displays, *inter alia*, the name of the customer, if this information is available, the SA's matching score for the customer, the number of clicks the customer has made, what the customer is currently viewing, and the amount of time the customer has been browsing.

The Inbox window 602 displays messages from customers along with the customers' names, type of message, and date received. The SA can create new messages or can reply to the customer's messages via the Inbox.

To the extent that data is available on the customers, the Customer Profile window 604 displays a list of these customers obtained from the customer data server 208. Basic information about the customer (such as address and phone number) is displayed and a menu of additional information, such as, relationship, correspondence, and personal notes, is displayed. By clicking on one of the menu items additional information is displayed in a More Detail window (not shown).

The top left hand side of the screen displays the various functions that are available to the SA at the Sales Office, for example, Daily Information, Browsing Customers, Product Resource Finder, Product Resource Library, Customer Profiles, and Inbox.

When an SA is linked with a customer, a Sales Floor screen is displayed on the SAs user interface as shown in Figs. 7 and 8. The Sales Floor screen has a Session History window 700 that allows an SA to view the session history of the customer

and view a current map of the customer in the website, the current flow of the customer, past maps, and past flows. A Customers Browser window 701 is also displayed on the Sales Floor screen that allows the SA to view what the customer is viewing. If allowed by the enterprise and/or the customer, an SA may manipulate and control the customer's browser and may 'whiteboard' on the pages the customer is viewing.

The Chat With Customer window 704 allows the SA to communicate with the customer. Instant messenger is the method of communication shown in the Customer Interaction window 704, as well as a list of commonly used phrases. The SA and customer can communicate via voice over IP, telephone, e-mail, or on a variety of applicable means. If the customer has the capability to receive a telephone call while connected to the Internet, the SA can connect to the customer via voice over IP or a telephone call over the PSTN through a bridge provided by the system. The customer can continue to view applicable web pages while conversing with the SA.

The Product Resource Finder 702 window allows the SA to select a particular product, for example, loans. The SA can, by clicking on a particular product, obtain additional product and catalog information concerning the product or service. The Product Resource Finder may also be used to assist the SA in identifying related products to be suggested as upsells or cross-sells. The SA can search for products or browse through categories of products. Information is provided to the Product Resource Finder window from the product database 224 via the content engine 208.

The Product Resource Library window 706 is used by the SA to access additional information about a particular product or service. In the example used in

Fig. 8, the SA desires more information regarding mortgages. The Item Information window 706 provides the SA with best practices information from the practices engine 230. As explained above, the best practices information includes sales advice, external information, and product and catalog information, such as comparisons to other products, third party information regarding the product, sales pitches, related products, specific product information, warranty information, promotional information, shipping options, and terms of sale.

The Transaction Detail window 708 displays the customer's shopping cart to the SA. The SA, subject to the enterprise's and/or the customer's permission, can manipulate the customer's shopping cart.

Fig. 9 illustrates the Certification screen of the SA user interface. The Qualifications window 900 shows the SA the products and services that the SA is qualified to sell as well as the SAs rankings in her qualifications. The Certification Information window 902 provides the SA with information concerning the particular certifications available. The Certification detail window 904 provides the SA with an online test for certification.

Fig. 10 illustrates a flow diagram of the sales process using the system of the invention. At 1000, a customer enters a website. If the customer, is a returning customer of the website, the website greets the customer at 1002. The ExSACT matching engine 212 then matches the customer with a specific SA or several SAs. In step 1004, the SA greets the customer. This greeting is either re-active (if the customer has requested help) or pro-active (if the customer has not specifically requested sales assistance) depending on the customer's actions and the setup of the

website. The SA evaluates the customer's intent at 1006 and determines whether the customer desires assistance at 1008. If the customer does not want assistance, the SA disengages at 1010.

If the customer does seek assistance, the SA then evaluates the customer's needs further through communication with the customer and accessing data on the customer at 1012. At this point, the SA determines the products, features, price range, user, and the customer's product knowledge. The SA then performs research at 1014 using the Product Resource Finder and Product Resource Library Information windows shown in Fig. 8 to access the best practices data. The SA directs the customer to specific products at 1016 and provides additional information as necessary to close the sale. The SA can use external (Web) assets as part of the experience, for example, the SA can take the customer to a competitor's website to show the customer the higher prices being charged by the competitor.

The SA evaluates whether the customer made a selection at 1018 and if so suggests related merchandise at 1022. The SA can then perform research at step 1014 on the related merchandise and then the process continues as before. If the customer did not make a selection, the SA further evaluates whether the customer is finished shopping at 1020. If the customer is not finished shopping, the SA evaluates the needs of the customer further at 1012 and the process continues as before. If the customer is finished shopping, the SA offers additional product information at 1024 and reinforces the customer's selection at 1026. The customer proceeds to the enterprise specific check out process at 1028. The SA can assist the customer at the

check out process. At 1030, a satisfied customer leaves the website. The SA can follow up with the customer through the methods shown at the bottom of Fig. 10.

The foregoing is provided in order to disclose the invention in accordance with the patent laws, and more particularly to disclose preferred embodiments of systems and processes according to the present invention. Modifications, adaptations, and changes may be made to what is disclosed without departing from the scope or spirit of the invention, which is to provide systems and processes to facilitate selling on, over, through or in conjunction with the online channel.

What is claimed is:

1. A computer implemented method for selling goods and services in conjunction with the Internet, comprising:

receiving session information from an enterprise's website about a customer's session on the website, the session information comprising the products the customer is searching;

receiving any customer information on the customer from the enterprise;

determining from the session information and any customer information that the customer constitutes a sales opportunity appropriate for assistance from a sales associate;

matching the customer with at least one sales associate;

facilitating communication for a sales transaction between the customer and the matched sales associate via the Internet;

receiving sales information; and

providing the session, customer, and sales information to the matched sales associate based on the particular sales opportunity with the customer.

2. The method of claim 1, wherein the customer information is received from the enterprise.

3. The method of claim 1, wherein the customer information is received from a third party.

4. The method of claim 1, wherein the session information is parsed and segmented in accordance with product accreditations achieved by sales associates,

whereby each sales associate is presented with different types of sales opportunities depending on the product accreditation of the sales associate.

5. The method of claim 1, wherein sales opportunities are determined from a single website.

6. The method of claim 1, wherein sales opportunities are determined from a plurality of websites all operated by a single enterprise and the sales associates are employed by the enterprise.

7. The method of claim 1, wherein sales opportunities are determined from a plurality of websites all operated by different enterprises and the sales associates are independent from the enterprises.

8. The method of claim 1, further comprising;

facilitating bridging out from Internet communication between the customer and sales associate to another mode of communication between the customer and sales associate.

9. The method of claim 8, wherein the bridged mode of communication occurs over a public switched telephone network

10. The method of claim 8, wherein the bridged mode of communication occurs over the Internet via an IP-based communication protocol.

11. The method of claim 8, wherein the bridged mode of communication occurs over a wireless communication network.

12. The method of claim 1, wherein the sales associate has the capability to manipulate the customer's navigation of the Internet.

13. The method of claim 1, wherein the sales associate is provided session, customer, and sales information on web pages via the Internet.

14. The method of claim 1, wherein the sales information comprises product information, catalog information, and external information.

15. The method of claim 1, wherein some of the sales information is obtained from the enterprise.

16. The method of claim 1, wherein some of the sales information is obtained from a third party.

17. The method of claim 1, wherein the sales information provided to the sales associate is pertinent to the sales opportunity based on the characteristics of the sales opportunity.

18. The method of claim 1, wherein the sales information provided to the sales associate is associated with the results of a previous sales opportunity and the association produces a dynamic re-ranking of the aggregate sales information available in terms of selling effectiveness, and results of the re-ranking are automatically incorporated into the sales information provided to a next sales associate presented with a similar sales opportunity.

19. A computer implemented method of matching an online customer on a enterprise's website with at least one online sales associate, comprising:

receiving session information on a customer session on the enterprise website;

receiving any customer information on the customer;

receiving sales associate profile information on the sales associates;

determining an appropriate matching rule set to apply;

applying the rule set to the session, customer, and sales associate information;

formulating a matching score for each sales associate; and

ranking the sales associates based on the matching score.

20. The method of claim 19, wherein determining the appropriate matching rule set to apply is based on the session information.

21. The method of claim 19, further comprising:

dynamically re-ranking the sales associates' rankings based on actual experiences within the system.

22. The method of claim 19, further comprising:

alerting a sales associate to contact the customer.

23. The method of claim 19, further comprising:

alerting more than one sales associate to contact the customer.

24. The method of claim 23, further comprising:

allowing only the first sales associate to contact the customer to communicate with the customer.

25. The method of claim 19, further comprising:

alerting more than one sales associate that the customer can be contacted.

26. The method of claim 19, further comprising:

alerting a sales associate that the customer must be contacted.

27. The method of claim 19, further comprising:

providing the matching scores to the sales associates.

28. The method of claim 19, wherein the rule set is determined by the enterprise.

29. The method of claim 28, wherein the enterprise determines the rule set based the enterprise's sales and marketing strategies.

30. The method of claim 19, further comprising:

modifying the rule set.

31. The method of claim 30, wherein the rule set is modified by the enterprise via the Internet.

32. The method of claim 30, wherein the rule is set is dynamically modified.

33. The method of claim 19, wherein the matching score is dynamically calculated by determining, for each sales associate, the score for each rule within the rule set, multiplying the score for each rule based on the relative importance of the rule to get a weighted rule score, adding the weighted rule scores.

34. A computer implemented method of gathering sales information, comprising:

monitoring online sales transactions between sales associates and customers;

indexing and ranking information and sales techniques used by the sales associate during the transaction to create best practices information; and

storing the best practices information.

35. The method of claim 34, further comprising:

providing a sales associate with the best practices information during an online sales transaction based on a particular sales transaction.

36. The method of claim 34, wherein the best practices information comprises product information, sales techniques, and external materials.

37. The method of claim 34, further comprising:

providing an enterprise with the best practices information.

38. The method of claim 37, wherein the best practices information is provided to the enterprise via the Internet.

39. The method of claim 37, wherein the best practices information is provided to the enterprise offline.

40. The method of claim 34, further comprising:

dynamically re-ranking the best practices information based further sales transactions.

41. A computer implemented method of gathering sales information from an online sales transaction between a sales associate and a customer, comprising:

monitoring online sales transactions between sales associates and customers;

indexing and ranking all information and sales techniques used by the sales associate during the transaction to create best practices information;

storing the best practices information; and

storing the outcome of the sales transaction.

42. The method of claim 41, further comprising:

re-ranking all information and sales techniques based on subsequent online sales transactions; and

continually distributing the best practices information to sales associates, whereby the sales associates receive the current best practices information.

43. The method of claim 41, further comprising:

storing the methods of communication used during the sales transaction.

44. The method of claim 41, wherein the best practices information comprises product information, sales techniques, and external materials.

45. The method of claim 41, wherein the outcome of the sales transaction comprises the products sold and the amount of the sale.

46. The method of claim 45, wherein the outcome of the sales transaction further comprises the commission earned by the sales associate.

47. The method of claim 41, further comprising:

providing a sales associate with the best practices information during an online sales transaction based on a particular sales transaction.

48. The method of claim 41, further comprising:

providing an enterprise with the best practices information, sales transaction information, and method of communication information.

49. The method of claim 48, wherein the best practices information, sales transaction information, and method of communication information is provided to the enterprise via the Internet.

50. The method of claim 48, wherein the best practices information, sales transaction information, and method of communication information is provided to the enterprise offline.

51. The method of claim 41, further comprising:

dynamically re-ranking the best practices information based on further sales transactions.

52. A computer implemented method of registering sales associates to assist customers in online sales transactions, the method comprising:

receiving a registration request from a sales associate;

receiving sales associate information from the sales associate;

analyzing sales associate information to determine if the sales associate is an acceptable candidate to assist customers;

notifying the sales associate that the sales associate is an acceptable candidate upon a determination that the sales associate is an acceptable candidate; and

matching the sales associate with a customer browsing on an enterprise's website.

53. The method of claim 52, further comprising:

requesting credit and background information on the sales associate from a third party; and

receiving credit and background information on the sales associate from a third party.

54. The method of claim 52, further comprising:

receiving a schedule of availability from the sales associate.

55. The method of claim 52, further comprising:

receiving method of contact preferences from the sales associate.

56. A computer implemented method of registering sales associates to assist customers in online sales transactions, the method comprising:

receiving a registration request from a sales associate;

receiving sales associate information from the sales associate;

receiving enterprise sales associate information comprising product accreditations from an enterprise employing the sales associate;

analyzing sales associate information, enterprise sales associate information, and testing results to determine if the sales associate is an acceptable candidate to assist customers; and

notifying the sales associate that the sales associate is an acceptable candidate upon a determination that the sales associate is an acceptable candidate.

57. The method of claim 56, further comprising:

ranking the sales associate based on sales associate information and enterprise sales associate information; and

matching the sales associate with a customer browsing on the enterprise's website.

58. The method of claim 56, further comprising;

testing the sales associate to determine product accreditations.

59. A computer implemented method of accrediting sales associates to assist customers in online sales transactions, the method comprising:

receiving an accreditation request from a sales associate;

delivering appropriate testing materials to the sales associate;

receiving the completed testing materials from the sales associate;

analyzing the completed testing materials from the sales associate;

updating a record for the sales associate to indicate a new level of accreditation; and

matching the sales associate with a customer browsing on an enterprise's website based on the accreditation.

60. A computer implemented method for selling goods and services in conjunction with the Internet, comprising:

receiving session information from a plurality of websites about customers' sessions on the websites, the session information comprising the products the customers are searching;

receiving any customer information on the customers;

for each customer, determining from the session information and any customer information that the customer constitutes a sales opportunity appropriate for assistance from a sales associate;

matching the customers with at least one sales associate;

facilitating communication for a sales transaction between the customers and the matched sales associates via the Internet;

receiving sales information for each sales opportunity; and

providing the session, customer, and sales information to the matched sales associates based on the particular sales opportunity with the customer.

61. The method of claim 60, wherein the websites are all operated by a single enterprise and the sales associates are employed by the enterprise.

62. The method of claim 60, wherein the websites all operated by different enterprises and the sales associates are independent from the enterprises.

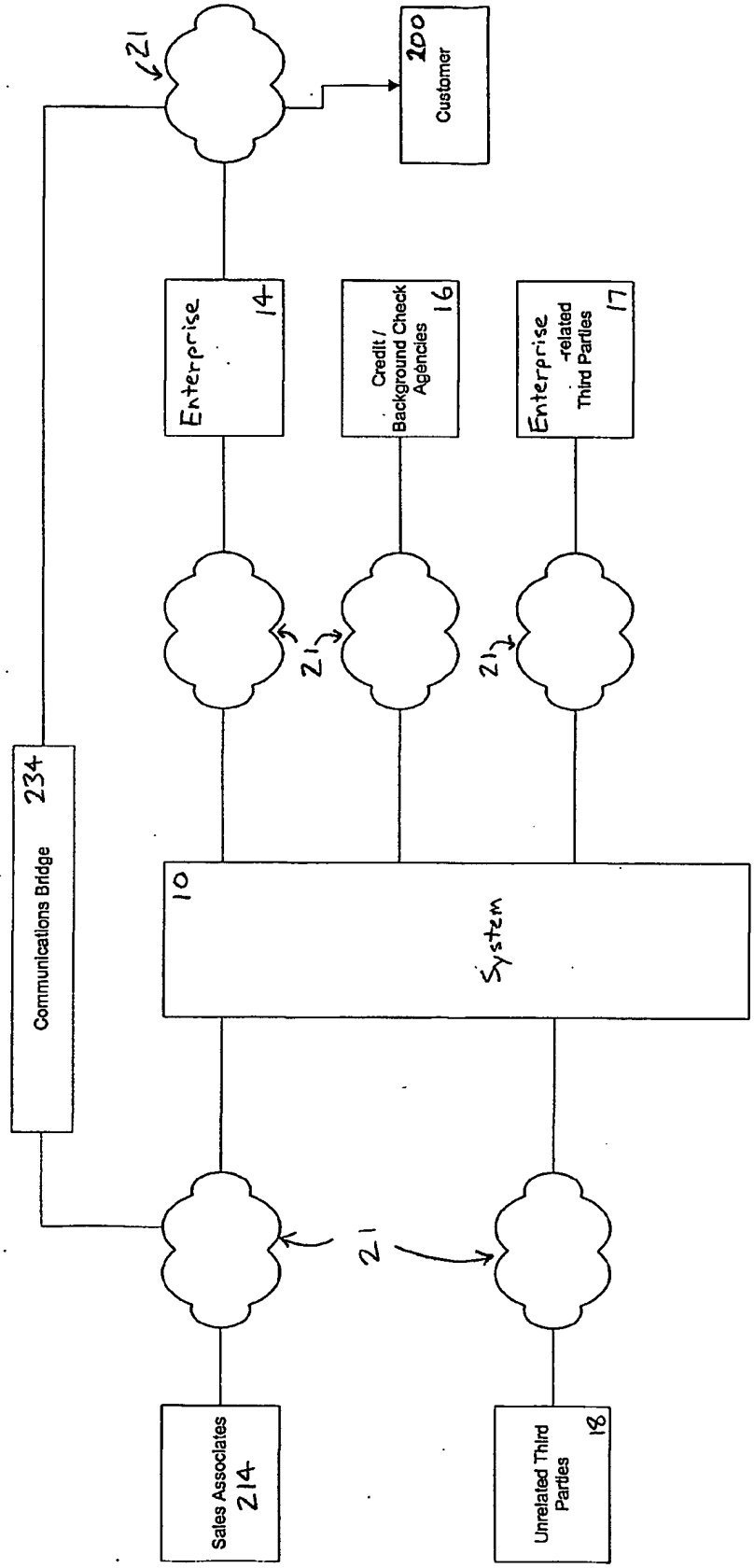

21
200
Customer
Enterprise
14
Credit / Background Check Agencies
16
Enterprise -related Third Parties
17
21
21
234
Communications Bridge
10
System
21
Sales Associates
214
Unrelated Third Parties
18

FIG. 1

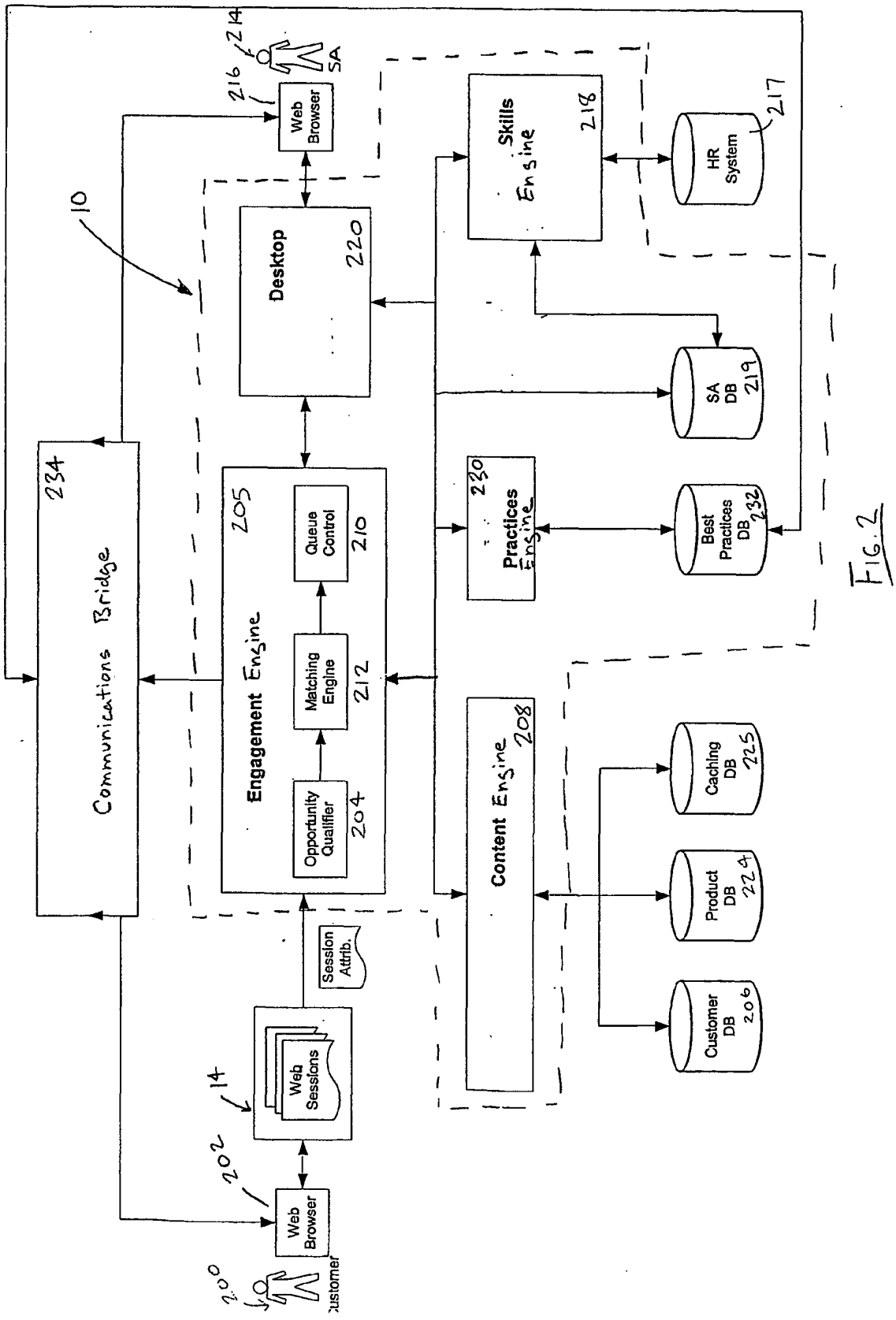
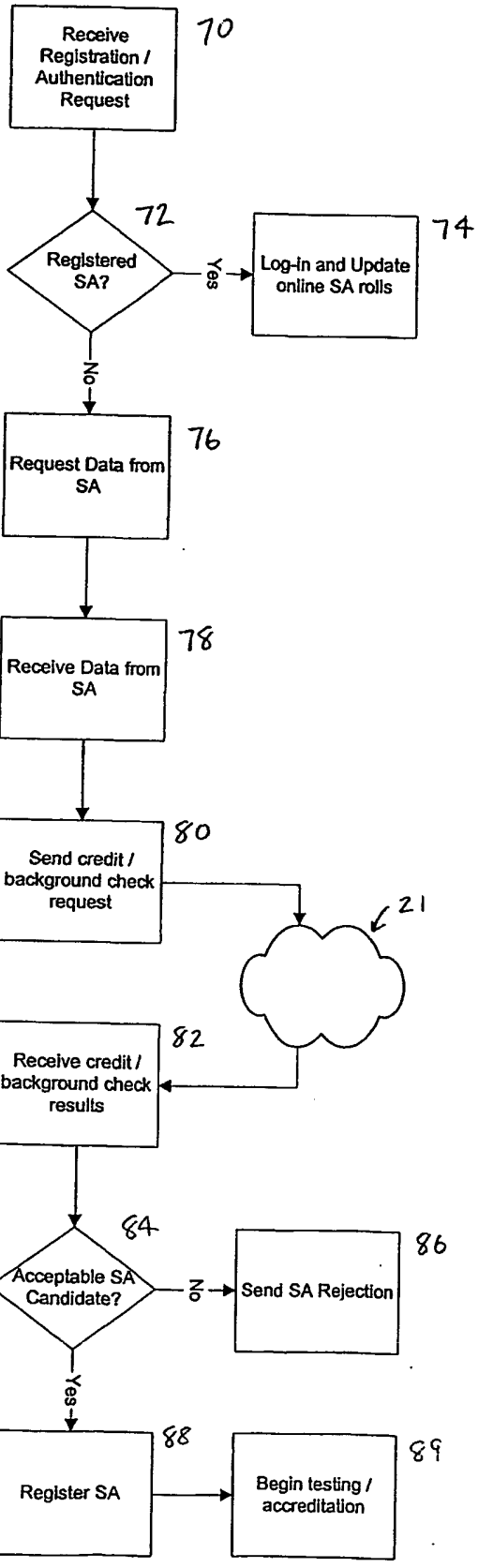

214
SA
216
Web Browser
10
Desktop
220
Skills Engine
218
HR System
217
SA DB 219
234
Communications Bridge
205
Engagement Engine
Queue Control
210
Matching Engine
212
Opportunity Qualifier
204
230
Practices Engine
Best Practices DB 232
Content Engine
208
Caching DB 225
Product DB 224
Customer DB 206
Session Attrib.
14
Web Sessions
202
Web Browser
200
Customer

FIG. 2


Receive Registration / Authentication Request
70
Registered SA?
72
Yes
Log-in and Update online SA rolls
74
No
Request Data from SA
76
Receive Data from SA
78
Send credit / background check request
80
21
Receive credit / background check results
82
Acceptable SA Candidate?
84
No
Send SA Rejection
86
Yes
Register SA
88
Begin testing / accreditation
89

F16.3

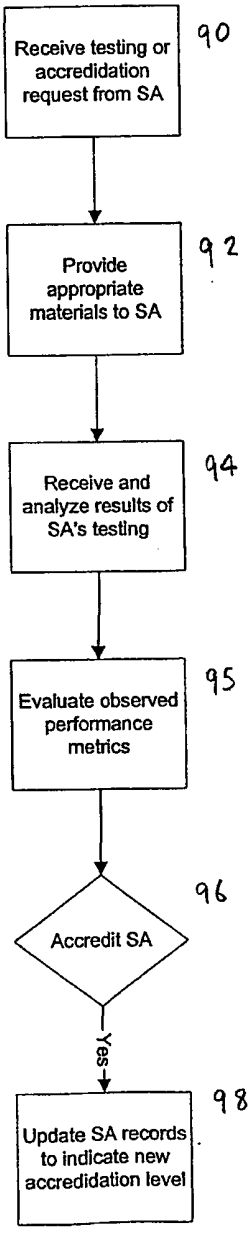

Receive testing or accredidation request from SA
90
Provide appropriate materials to SA
92
Receive and analyze results of SA's testing
94
Evaluate observed performance metrics
95
Accredit SA
96
Yes
Update SA records to indicate new accredidation level
98

FIG. 4

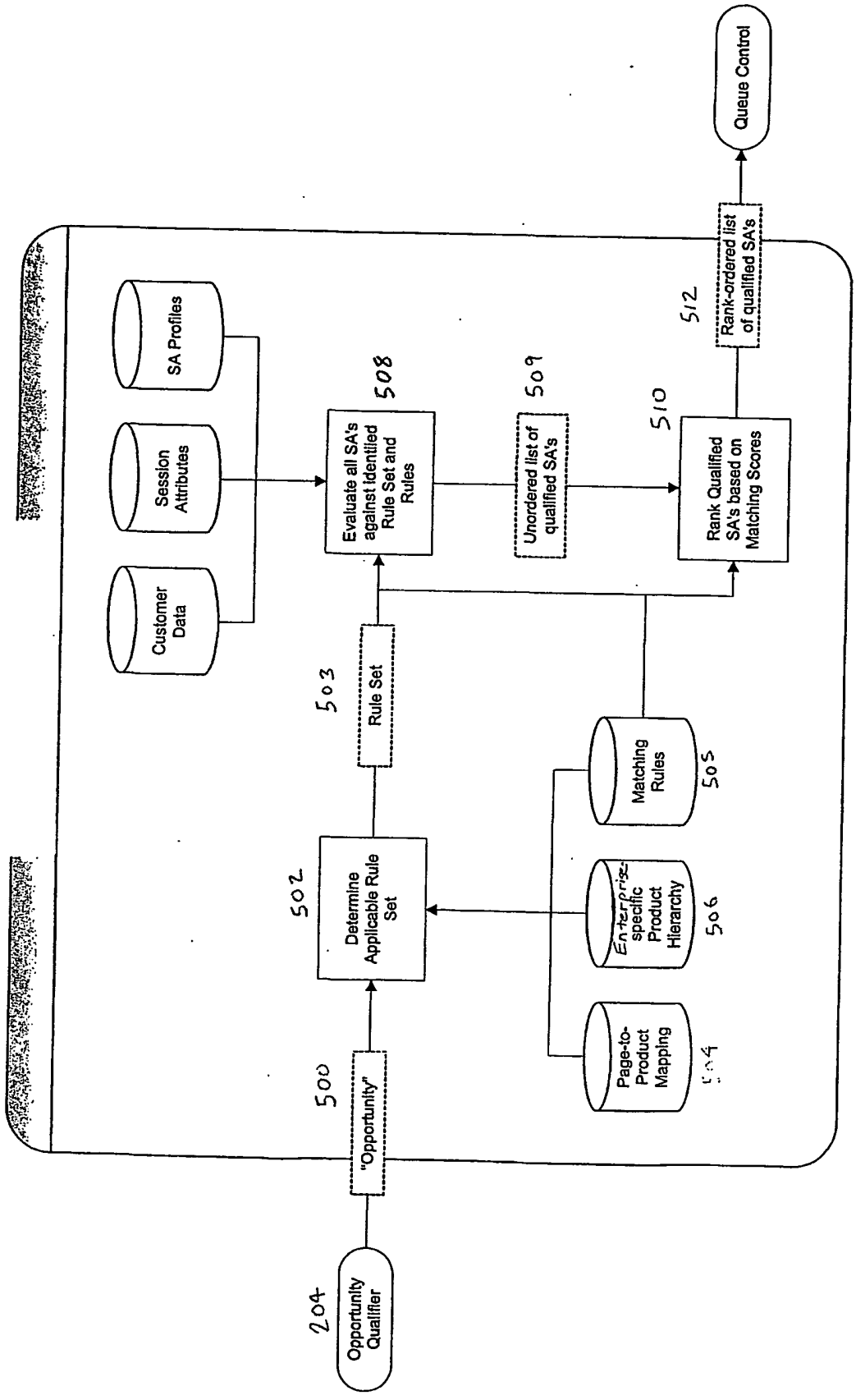

Queue Control
Rank-ordered list of qualified SA's
512
SA Profiles
Session Attributes
Customer Data
Evaluate all SA's against identified Rule Set and Rules
508
Unordered list of qualified SA's
509
Rank Qualified SA's based on Matching Scores
510
Rule Set
503
Matching Rules
505
Determine Applicable Rule Set
502
Enterprise-specific Product Hierarchy
506
Page-to-Product Mapping
"Opportunity"
500
Opportunity Qualifier
204

Fig. 5

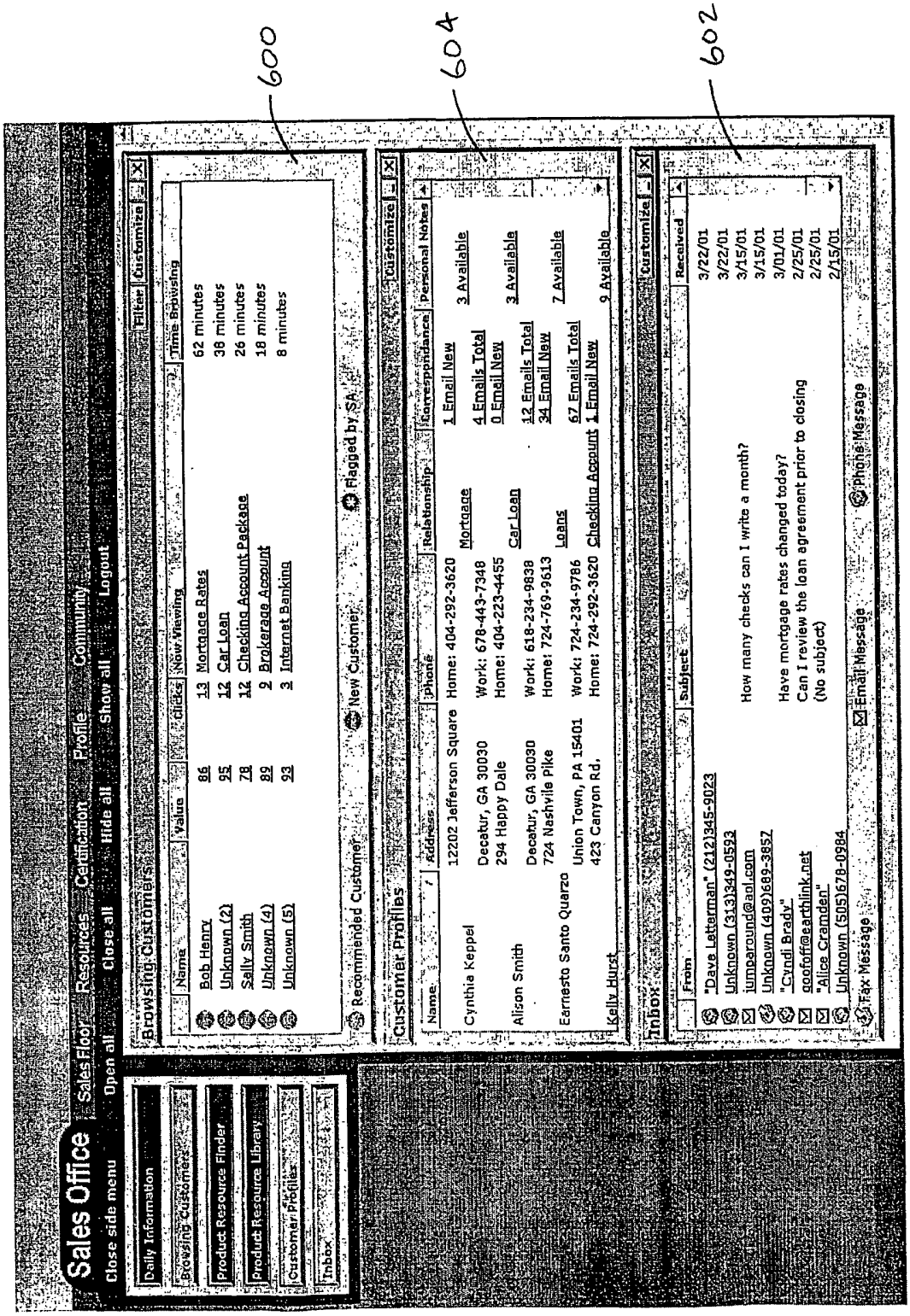

Sales Office
Sales Floor
Resources
Certification
Profile
Community
Close side menu
Open all
Close all
Hide all
Show all
Logout
Daily Information
Browsing Customers
Product Resource Finder
Product Resource Library
Customer Profiles
Inbox
Browsing Customers
Filter
Customize
Name
Value
clicks
Now Viewing
Time Browsing
Bob Henry 86 13 Mortgage Rates 62 minutes
Unknown (2) 95 12 Car Loan 38 minutes
Sally Smith 78 12 Checking Account Package 26 minutes
Unknown (4) 89 2 Brokerage Account 18 minutes
Unknown (5) 93 3 Internet Banking 8 minutes
Recommended Customer
New Customer
Flagged by SA
Customer Profiles
Customize
Name
Address
Phone
Relationship
Correspondence
Personal Notes
Cynthia Keppel 12202 Jefferson Square Home: 404-292-3620 Mortgage 1 Email New 3 Available
Decatur, GA 30030 Work: 678-443-7348 4 Emails Total
294 Happy Dale Home: 404-223-4455 0 Email New
Alison Smith Car Loan 3 Available
Decatur, GA 30030 Work: 618-234-9838 12 Emails Total
724 Nashville Pike Home: 724-769-9613 34 Email New
Ernesto Santo Quarzo Loans 7 Available
Union Town, PA 15401 Work: 724-234-9786 67 Emails Total
423 Canyon Rd. Home: 724-292-3620 Checking Account 1 Email New
Kelly Hurst 9 Available
Inbox
Customize
From
Subject
Received
"Dave Letterman" (212)345-9023 3/22/01
Unknown (313)349-0593 3/22/01
jumparound@aol.com How many checks can I write a month? 3/15/01
Unknown (409)689-3857 3/15/01
"Cyndi Brady" Have mortgage rates changed today? 3/01/01
goofoff@earthlink.net Can I review the loan agreement prior to closing 2/25/01
"Alice Cramden" (No subject) 2/25/01
Unknown (505)678-0984 2/15/01
Fax Message
Email Message
Phone Message
600
604
602

FIG. 6

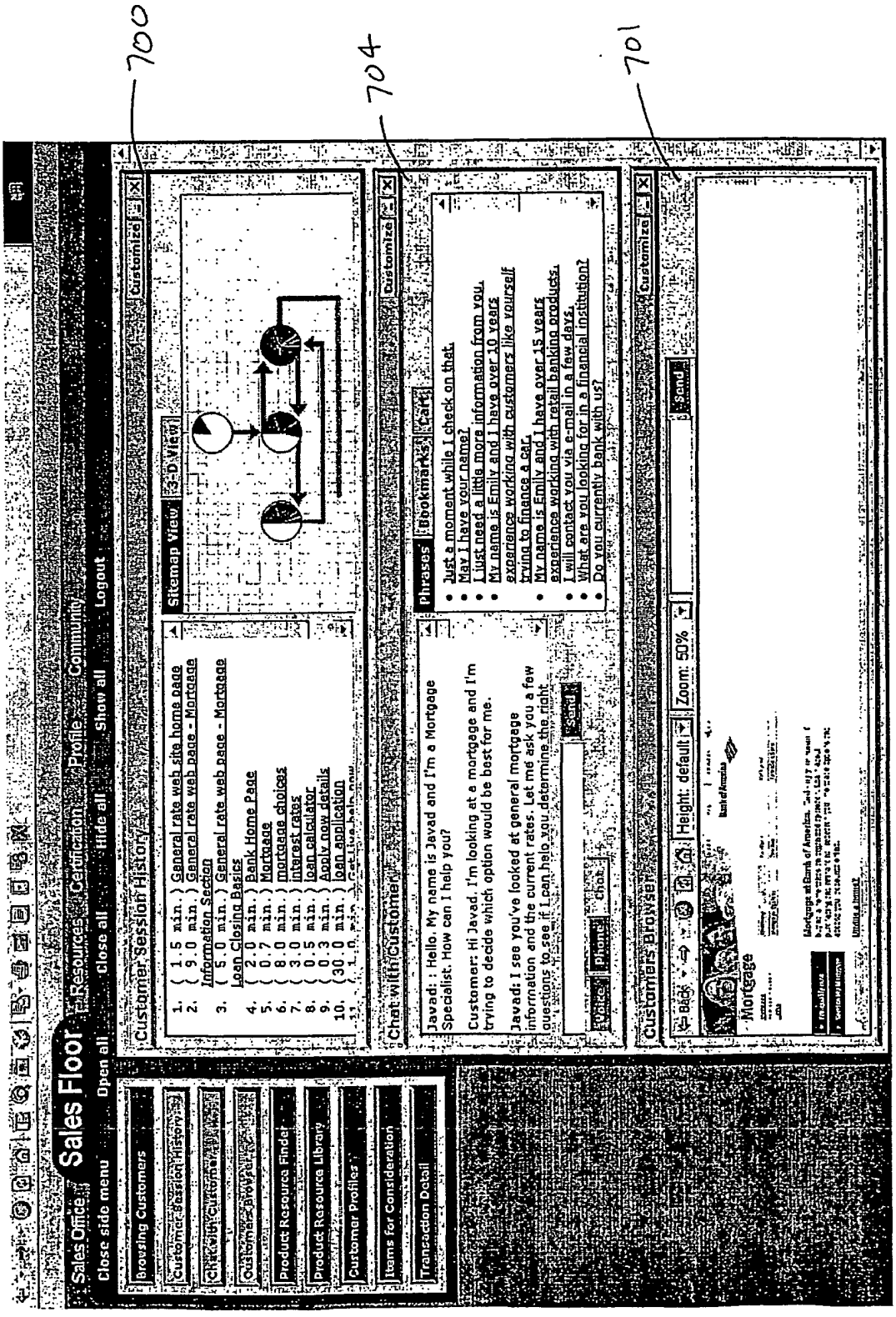

700
704
701
Sales Office
Sales Floor
Close side menu
Open all
Close all
Hide all
Show all
Logout
Browsing Customers
Customer Session History
Chat with Customer
Customer Browser
Product Resource Finder
Product Resource Library
Customer Profiles
Teams for Consideration
Transaction Detail
Resources
Certification
Profile
Community
Customized
Customer Session History
1. (1.5 min.) General rate web site home page
2. (9.0 min.) General rate web page - Mortgage Information Section
3. (5.0 min.) General rate web page - Mortgage Loan Closing Basics
4. (2.0 min.) Bank Home Page
5. (0.7 min.) Mortgage
6. (8.0 min.) mortgage choices
7. (3.0 min.) interest rates
8. (0.5 min.) loan calculator
9. (0.3 min.) Apply now details
10. (30.0 min.) loan application
Sitemap View
3-D View
Chat with Customer
Customize
Javad: : Hello. My name is Javad and I'm a Mortgage Specialist. How can I help you?
Customer: Hi Javad. I'm looking at a mortgage and I'm trying to decide which option would be best for me.
Javad: I see you've looked at general mortgage information and the current rates. Let me ask you a few questions to see if I can help you determine the right
Voice
Phone
Chat
Phrases
Bookmarks
Cart
Just a moment while I check on that.
May I have your name?
I just need a little more information from you.
My name is Emily and I have over 10 years experience working with customers like yourself trying to finance a car.
My name is Emily and I have over 15 years experience working with retail banking products.
I will contact you via e-mail in a few days.
What are you looking for in a financial institution?
Do you currently bank with us?
Customers Browser
Customize
Back
Height: default
Zoom: 50%
Search
Mortgage

FIG. 7

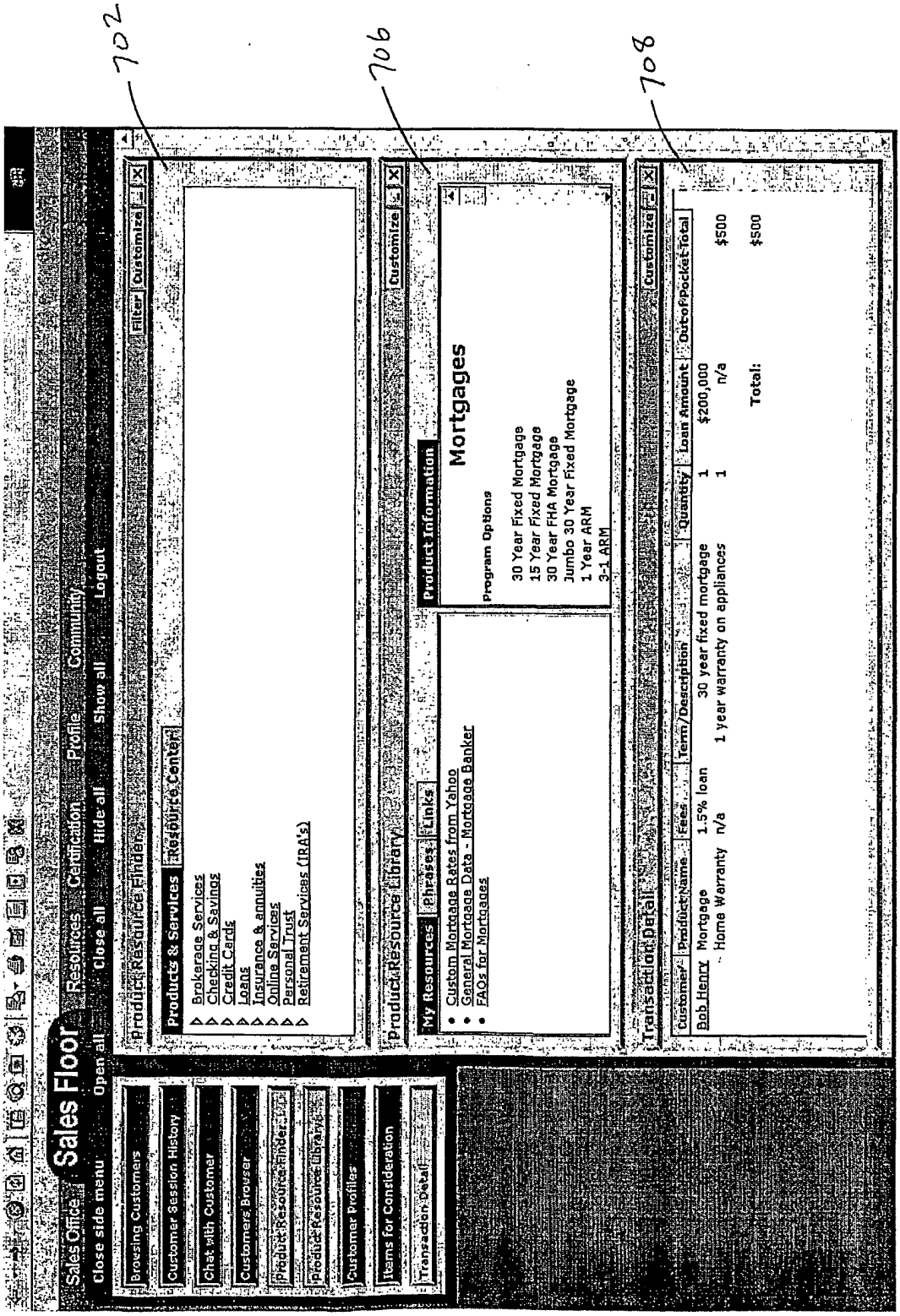

Sales Office
Sales Floor
Resources
Certification
Profile
Community
Close side menu
Open all
Close all
Hide all
Show all
Logout
Browsing Customers
Customer Session History
Chat with Customer
Customers Browser
Product Resource Finder
Product Resource Library
Customer Profiles
Items for Consideration
Transaction Detail
Product Resource Finder
Filter
Customize
Products & Services
Resource Center
Brokerage Services
Checking & Savings
Credit Cards
Loans
Insurance & annuities
Online Services
Personal Trust
Retirement Services (IRAs)
Product Resource Library
My Resources
Phrases
Links
Custom Mortgage Rates from Yahoo
General Mortgage Data - Mortgage Banker
FAQs for Mortgages
Product Information
Mortgages
Program Options
30 Year Fixed Mortgage
15 Year Fixed Mortgage
30 Year FHA Mortgage
Jumbo 30 Year Fixed Mortgage
1 Year ARM
3-1 ARM
Transaction Detail
Customer
Product Name
Fees
Term/Description
Quantity
Loan Amount
Out of Pocket Total
Bob Henry
Mortgage
1.5% loan
30 year fixed mortgage
1
$200,000
Home Warranty
n/a
1 year warranty on appliances
1
n/a
$500
Total:
$500
702
706
708

FIG. 8

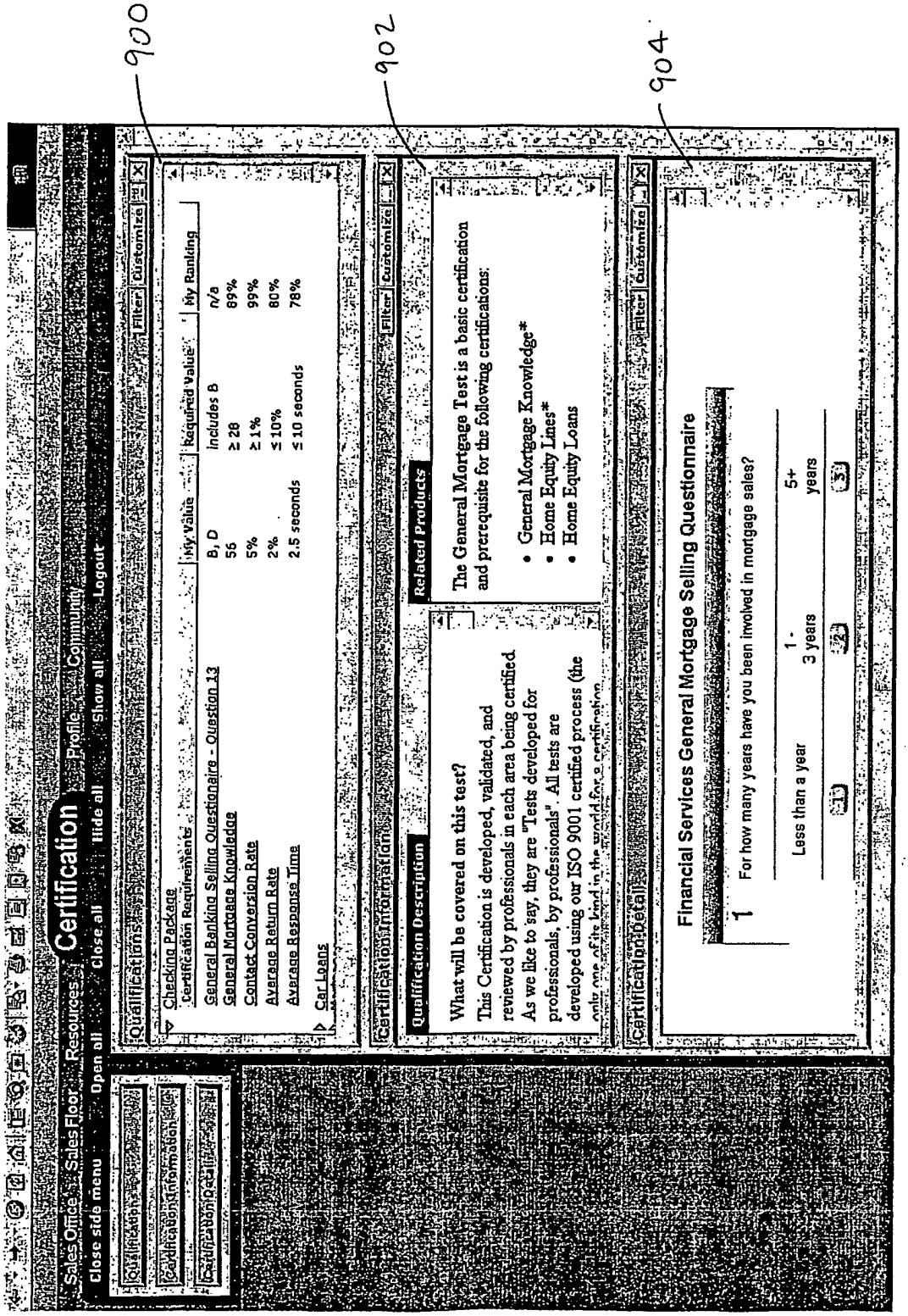

900
902
904
Certification
Profile
Community
Close side menu
Open all
Close all
Hide all
Show all
Logout
Qualifications
Checking Package
Certification Requirements
My Value
Required Value
My Ranking
General Banking Selling Questionaire - Question 13
B, D
Includes B
n/a
General Mortgage Knowledge
56
≥ 28
89%
Contact Conversion Rate
5%
≥ 11%
99%
Average Return Rate
2%
≤ 10%
80%
Average Response Time
2.5 seconds
≤ 10 seconds
78%
Car Loans
Filter
Customize
Certification Information
Qualification Description
Related Products
What will be covered on this test?
This Certification is developed, validated, and reviewed by professionals in each area being certified. As we like to say, they are "Tests developed for professionals, by professionals". All tests are developed using our ISO 9001 certified process (the
The General Mortgage Test is a basic certification and prerequisite for the following certifications:
• General Mortgage Knowledge*
• Home Equity Lines*
• Home Equity Loans
Certification Detail
Financial Services General Mortgage Selling Questionnaire
1
For how many years have you been involved in mortgage sales?
Less than a year
1 - 3 years
5+ years
1
2
3

FIG. 9

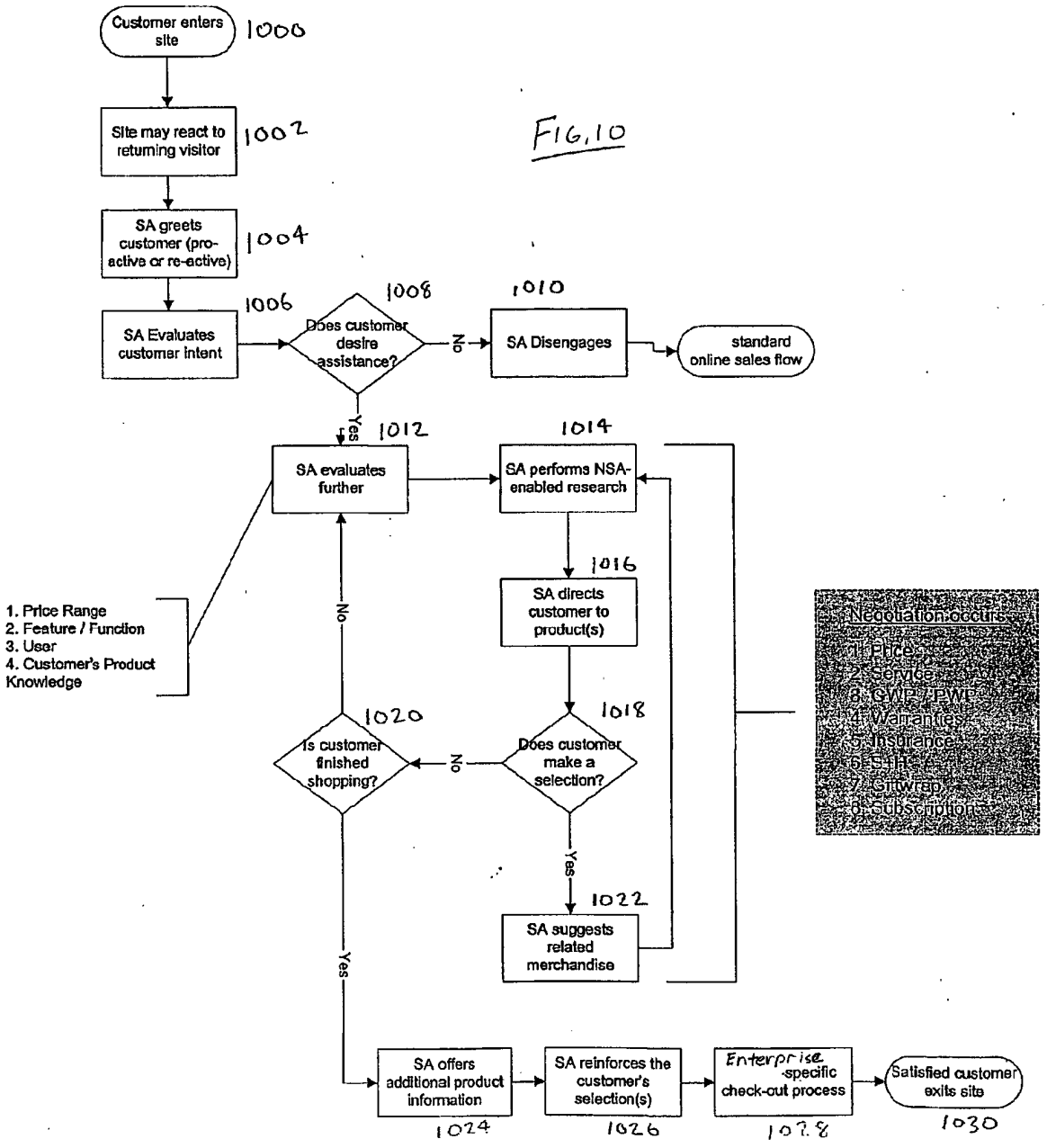


Fig. 10

Post-transaction Follow-up / Proactive Relationship Management

E-mail order confirmation	Thank customer (note, card, phone call)	E-mail shipment confirmation	Notify customer of available similar or related merchandise.	Remind customer to replenish / renew / re-order product.	Notify customer of sales / promotions.	Recurring / periodic event contact (birthday, anniversary, etc.)